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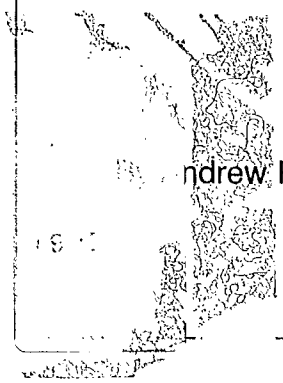
THE INFORMATION SUPERHIGHWAY :

WILL SOME CANADIANS BE LEFT ON THE SIDE OF THE ROAD?



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The Information Superhighway:

Will Some Canadians Be Left On The Side of The Road?

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EXECUTIVE SUMMARY

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EXECUTIVE SUMMARY

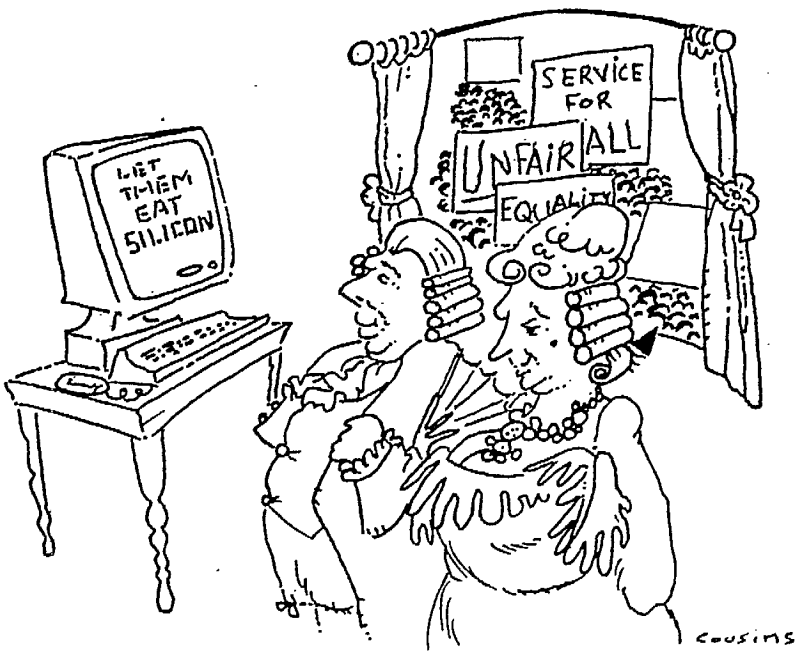
1.0 Executive Summary

The purpose of this study was to examine the kinds of service and capabilities that might be available under different scenarios for the development of the Information Highway and to make recommendations on basic and essential service in an information age. The study considers cost implications, market receptiveness, the ability of consumers to make use of such services, and the likely importance of such services to the ordinary Canadian, particularly the vulnerable consumer.

Unless affordable access to a basic set of communication networks and services is ensured through policy, there is a very real risk that a large number of Canadians will only have limited access to, or be excluded outright from, the Information Highway. There is no single group of Canadians facing this problem. Economic barriers to access exist for most low income Canadians and increasingly for a number of those in the middle class, regardless of where they live in Canada. Moreover, these social class segments in particular and other residents in general living in rural, remote and small market locations face access and affordability barriers to the Information Highway. In some instances these barriers are further aggravated by other needs, including literacy, language and culture and, disability. Neither fact nor history provide any assurances that a competitive market alone will be able to provide universal basic services for all Canadians.

1.1 Basic and Essential Service

In our changing communication environment there is an important need to upgrade the definitions of a minimum set of services geared to subscriber needs. This should include defined minimum levels of basic utility service which are provided at an affordable, flat rate basis. Basic and essential services are the foundations of our contemporary state-of-the-art communication system and will be the building blocks of the Information Highway. This minimum basic and



essential service standard needs to be applied consistently across Canada in order that all Canadians have affordable access to networks and are able to use and benefit from this access. As Canada develops its Information Highway, we must ensure that a large number of Canadians are not left by the side of the road.

The extensive restructuring of communications requires a rethinking of how practises involving access and cost allocation should be undertaken to make sure that the economic and social benefits achieved through policies of universality and basic service are maintained and extended. Questions of what share of the costs should subscribers pay and, how much funding and by what mechanisms should carriers and content providers be required to contribute to help underwrite the cost of basic service and local access will need to be addressed on an ongoing basis. The degree to which the costs of new competitive services are cross subsidized by basic subscribers and the cost of existing basic and essential service in a rebalanced pricing environment will create substantial affordability challenges for many Canadians. Some services, such as basic telephone and cable, are so important to daily life that people will stretch themselves financially to keep them.

Given that it will take ten to fifteen years at a minimum to roll out different levels of Information Highway service to all locations, it is important that common ground rules and minimum standards for basic and essential service are established to maintain existing levels of

service and, to serve as bench marks or cornerstones for future network development and pricing policies.

While competition is expected to provide some cost and choice benefits to subscribers, nonetheless, there is a strong public desire that the vagaries and pitfalls of uncontrolled market decision making should be avoided particularly with basic and essential service. Universal basic and essential service at affordable rates for any basic utility option should be established through public oversight, public consultation and regulation.

1.1.1 An Evolutionary Approach

The most efficient and fair approaches to achieve this goal are *Symmetrical Regulation* and an *Evolutionary Development Model.* A bundled package of basic and essential services offered under a fixed pricing regime needs to be defined and implemented. This basic and essential communication package should define services and functionality for wire-less, satellite, off-air, cable and telephony components and be applied symmetrically to all providers who are competing in each type of service. Where only one carrier provides service in an area, other carriers and content providers should be required to contribute to basic service and access costs. Regulation should ensure mandatory, universal and affordable basic service in all locations. Such regulation will need to be flexible to meet the needs of providers and subscribers in each market area. This regulatory framework should permit and encourage various funding, partnering, public procurement leveraging and other support strategies which may be necessary to facilitate affordable infrastructure and content development and access.

A flexible regulatory approach should also permit the package of mandatory services to be "open". This means that in addition to this mandatory level of service, to accommodate competitive market objectives, providers should be able to add to this package at their own risk.

Ensuring affordable universal access is very much in the interest of commercial providers. The value of the networks and the ability of companies to recoup investments increases when as many Canadians as possible are able to access and use networks and services. Policies supporting universality not only meet the varied economic, social and cultural needs of individual Canadians but, because they create market scale, are also a gift to competitors.

Resources would be most optimized and affordability of basic service maintained if an evolutionary strategy for the development of the Information Highway were adopted. An evolutionary approach for all areas of Canada featuring levels of service (e.g., basic utility, narrow and broadband) and universal access defined geographically (community, local institutions for narrow and broadband during transition) and individually (residence) for different network services and capabilities would be the most rational and efficient means of developing service and will do so in a way which balances market needs with users' access and affordability

needs. Moreover, this method would also ensure that people only pay for the services they actually use.

1.2 Advisory Panel

The federal government should establish a public Advisory Panel to deal with policy matters relating to basic and essential service, access and content issues arising with the implementation of the IHAC recommendations and the development of the Information Highway. The membership of this panel should feature a *balance* of public and private sector interests. The panel should report to the Minister's of Industry and Heritage, but operate arms-length from the government. Funding should be provided by both the federal government and industry and be of sufficient levels to undertake public consultations, commission study's and other research in order to make recommendations to the government on the courses of action that would best service public policy, commercial and public interests.

1.3 Defining Basic and Essential Service

A public consultation process to define the components of basic and essential service should be undertaken in the fall of 1995 by the CRTC. This process should consider such issues as policy, components of basic and essential service, affordability and pricing, new services and contribution mechanisms, and the needs of low income, rural and remote and small market subscribers. Such a process should be conducted under the Telecommunications Act because many of these issues are carriage related. However, the hearing should include relevant aspects of the Broadcasting Act given its importance with access, delivery, funding and basic and essential content service issues.

At a general level, basic and essential service should be defined as that level of service required for full participation in society. This does not mean that Canadians must have all services. It does mean that they should have guaranteed, affordable access to an evolving, changing set of minimum required services and functionality and, available and optional local access to other (e.g., competitive, narrow or broadband) services in future. Rather than relying on narrow economic criteria alone, a wide combination of political, social and economic variables should be used to determine the components of the basic and essential basket of services. In the transition to the Information Highway, there should be no diminishment in the quality or level of existing service.

The cost of providing basic service should be calculated according to least cost provision of service (see Principles below), and should be recouped in part from subscriber rates (commensurate with existing price levels), and contributions from all carriers and commercial content providers who benefit from access to this market base.

Four principles should be used to guide decision making in the development of Canada's communication networks, basic and essential services and affordable pricing rules (see Section Seven for a detailed discussion of these principles). These are:

- Least cost provision of service;
- Ensure that users of the network pay for their fair share of use, in proportion of demands that they place on the network;
- Minimize the burden of joint and common costs;
- Ensure that the concept of basic and essential service does not raise the price of basic service.

1.4 Affordability

Service and affordability should be assessed by adding the criteria of "per cent of income spent on service" to that of penetration levels. Measuring affordability this way will provide a clearer understanding of the challenges faced by many people to have basic service. This approach will also assist the government in developing effective policies to meet the diverse needs of Canadians.

1.5 New Services

Basic service upgrades should only be undertaken when they meet the wider social and economic needs of subscribers not just provider needs. The evolution of basic and essential service must respond to legitimate consumer demand and promote social well being, not accommodate the speculative investment of market players.

New competitive services will place demands on the overall network infrastructure (including local loops - cable, telephony). A portion of the revenues from these new, competitive services should be contributed to the basic cost of access for all subscribers.

All basic utility networks will need to feature full, two way interactivity as part of basic and essential service in the near future in order to avoid asymmetry in the market place and to meet changing subscribers' needs. Contributions from commercial carriers and content providers will be required to offset the cost this functionality for subscribers. This level of interactivity should be considered as a potential basic and essential service in any public review of this issue that is undertaken in the near future.

Public service networks (public lane- community, library, education, government) will likely become a required basic service in future. Partnering and leveraging roles by governments will be required to offset the costs of creating this public lane and delivering it to all users, either directly or through local access sites. The utility and content components of these services should

also be supported by contributions from commercial carriers and content providers. Contributions should be in the range of 5% of carrier revenues and 10% of content provider expenditures on new content of which a substantial portion should be directed locally.

1.6 Rural, Remote and Small Markets

Subscribers in rural, remote and small market locations need access to quality, affordable utilities and to the same content services which are, or will be, available in the core urban markets. The move to competition coupled with the expected price increases in basic costs (e.g., rate rebalancing) means that many subscribers will not be able to afford existing service let alone new services. Affordability for all Canadians will only be attained through a combination of policy and market initiatives as competition increases. The policy mix will need to include: cross-subsidies; direct subsidies; a Universal Service Fund; leveraged upgrades and reduced pricing through government procurement; regulated service requirements; partnering and utility sharing; special tariffs for public and other essential services on the networks; flat rate pricing for basic access; and the exclusion of different forms of measured service for basic access and use of essential content and utility services, including public service networks.

In the far North and other locations in Canada, where necessary, utility sharing and alliances or partnerships should be pursued to provide sufficient levels of service in the areas of programming, information services, satellite delivery, cable and telephony. These arrangements should include equity participation and a decision making role by different private and public interests. An evolutionary strategy for basic service and Information Highway development should feature the interconnection and interoperability of upgraded satellite, local telephone and cable networks to provide evolving, quality levels of affordable basic and essential service.

In rural, remote and small market areas, there will be a continuing federal government role, as a matter of policy and statutory responsibility, to assist in network development and access, and to continue core funding for content services.

SECTION TWO:

PURPOSE AND METHODOLOGY

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2.0 Purpose and Methodology

2.1 Purpose

The purpose of this project was to examine the kinds of services and capabilities that might be available under different scenarios for the development of the Information Highway and to make recommendations on basic and essential service in the information age.

The study considers cost implications, market receptiveness, the ability of consumers to make use of such services, and the likely importance of new information age services to the ordinary Canadian, particularly the vulnerable consumer. The needs of consumers, especially those who are more vulnerable, must be examined now, before the Information Highway is developed. This must be done with a view to determining what should constitute basic services in the context of how, without clear and substantive policy, the additional costs of the Information Highway may be so prohibitive as to force the bypass of rural Canada by new services and leave these as well as low income and other Canadians on the side of the road.

2.2 Methodology

This study presents research, analysis and findings in nine sections. The Executive Summary comprises Section One. Section Two presents the purpose, methodology and report outline. The Introduction, Section Three, introduces the reader to the issues surrounding basic and essential service and the overall importance of this concept in the development of the Information Highway. Section Four identifies the major challenges and factors affecting the introduction of new services, access and basic and essential service and provides an overview of the current definitions or practises that make up basic service in our traditional network infrastructures, including cable, telephony, satellite and broadcasting. Section Five analyses existing pricing and affordability challenges. It discusses how affordability is conceived, existing

challenges as we move to the Information Highway and contrasts this with social trends which impact affordability and the uptake of services. Moving to our changing environment, Section Six begins by presenting different possible scenarios for the development of our networks and services and the implications each would have for access and basic service. This section then reviews some new services and capabilities which will be available on the Information Highway and assesses the importance of these to the average Canadian. Given the trends and issues discussed in Sections Five and Six, Section Seven revisits basic and essential service. This section synthesizes the findings of this study into a model of what should constitute basic and essential service as a starting point for the Information Highway. This section also suggests a mechanism and process for widespread public consultation and participation in addressing, on an ongoing basis, such issues as: basic and essential service, access and content. Section Eight revisits the issue of affordability. This section proposes several principles which could be used as a framework to help define basic and essential service. It is also proposed that the criteria "percentage of income spent on service" be added to that of penetration levels as a guide to ensure affordable access by all Canadians. Section Nine briefly summarizes the conclusions and recommendations of the report. Appendix One analyses access issues which affect rural Canadians and presents a case study on the far North.

Research for this study was drawn from a wide resource base. This included an ongoing literature review of Canadian and international documents. Submissions to IHAC committees, IHAC publications for public comment and CRTC Convergence Hearing submissions were also reviewed. A bibliographic reference of a number of these documents is attached at the end of the report. Original surveys and study's by the Public Interest Advocacy Centre and other organizations were used to analyse pricing and affordability, consumer expectations and demand for new service, basic and essential service needs, among other issues. Information for this study was also drawn from interviews, ongoing consultations and discussions with public interest groups, commercial providers, Federal and Provincial governments.

SECTION THREE:

INTRODUCTION

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INTRODUCTION

3.0 Introduction

The concept of basic and essential service is a difficult and controversial one to define for the many different commercial, public and government interests involved in the debate on the Information Highway. For some the complexity of the issues in a rapidly changing communication environment are a challenge in redefining what basic and essential means or should mean. Others argue that the introduction of new technologies and the shift to increased competition suggests that the changing services and users' needs will be so dynamic that a static definition may quickly become obsolete. Proponents of a pure market approach advocate the idea that a plethora of new, minimum services and network functionalities will be provided through competition thereby removing the need for any fixed, regulated definition. A number of public interest groups argue that the concept is important but should be defined in terms of needs (e.g. types of service and content, or access) rather than technically.

Others argue that it is important to define a baseline of affordable minimum services geared to needs which includes a basic utility service to ensure that the public is able to continue the enjoyment and benefits of existing service as new services are developed and added. This latter approach is the least radical and grounded in the necessity to balance competing needs with the realities of technical capabilities and issues of affordability. The underlying rationale of this perspective is that existing basic and essential services are the foundation of our contemporary state-of-the-art communication system and that these are minimum standards which need to be applied consistently across Canada in order that all Canadians have affordable access to, and are able to use and benefit from, the networks. The national application of such standards does not necessarily mean that at a given point in time exactly the same basket of basic and essential service will necessarily be offered in all locations. A variety of factors, including policy, cost, need, technical capability, investment strategies, etc., will influence the time frame and degree to which this standard is achieved in different locations.

What is evident from the debate over the past year is that, implicitly or explicitly, a majority of public interests believe that the concept of basic and essential service does need to be ungraded and applied consistently with our public communication networks. While some

commercial providers would prefer an unregulated approach, many would accept a defined set of services if this was a matter of policy (regulation) and applied symmetrically as a requirement for all providers (either as required service or as required financial contributions to those providing such service).

The challenge in telecommunications as we move into a competitive environment is provide all citizens with **affordable access to those services they need to participate fully in society** without forcing those who don't want new services to pay for them. The whole point of defining the basket of basic and essential service is to ensure that everyone, regardless of income level or location, can afford at least that level of service.

SECTION FOUR:

BASIC AND ESSENTIAL SERVICE

SECTION FOUR:

BASIC AND ESSENTIAL SERVICE

4.0 Basic and Essential Service

4.1 Factors Affecting Basic and Essential Service

There are three main socio-economic factors affecting basic and essential service. How these are mediated and resolved is the role of public policy. In fact, public policy comprises a fourth factor in addition to playing a mediating role with these other three. The factors are:

- Cost of provision and user affordability
- Market strategies and the introduction of new technologies
- User needs (availability of service, minimum levels of functionality, content)

4.1.1 Cost and Affordability

The cost of providing existing or new services and the ability of all users to pay for these in an affordable way are inseparable dimensions of the pricing issue. In the shift to competition, there is pressure to realign the costs and availability of existing basic services. There is no guarantee that existing basic service will continue to be available or offered as part of a new basic service package or rate structure in the future. Similarly, there are no assurances that it will be economically justifiable from a supplier's perspective to offer such service in all markets. Depending upon market strategies and the market presence of competitors, basic service could be enhanced or reduced from what exists today. In these circumstances policy initiatives, addressing such issues as offsetting contributions or regulated service requirements, may be required to meet user needs.

4.1.2 Market Strategies

Competitive strategies to win new or keep existing customers may contribute to maintaining or expanding the basket of basic and essential service. However, the technical

requirements of new services will require upgrades in the basic service package the public will need to access and use these (e.g. single line digital, interactive Customer Unit Interface). Regardless of the level of service chosen by the user, increasingly they will also be using or routed on the upgraded underlying infrastructure necessary to deliver new services. This creates a tension between a provider interest to expand basic service by extending new network intelligence necessary to create new opportunities for companies to recover speculative investment and, the need to maintain minimal, affordable access costs and required minimum functionality for individuals.

The extensive restructuring of communications requires a rethinking of how pricing and cost allocation should be undertaken to ensure that the historic benefits achieved by policies of universality and basic essential service are maintained and extended. There is a general expectation that a large number of content providers will be interacting with individuals using local networks. This raises questions of how much and by what mechanisms should these providers be contributing to help underwrite the cost of basic and local access in addition to subscribers and network providers. Contributions from those who stand to reap large benefits from such access would be one means to ensure that all Canadians have affordable access.

4.1.3 User Needs

Including part or all of the costs of new services or functionality (necessary to use new content products and services) in basic access risks making the cost of access prohibitive for a large number of potential users. Moreover, this approach would force people to take services which may not be desired. For that matter, the ability to pay for existing basic and essential services in a rebalanced pricing environment will also be a challenge. Some services, such as basic telephone, are so important to daily life that people will stretch themselves financially to keep them. In this respect, the reported high penetration levels of telephony and cable can be misleading. Just because penetration rates are relatively high does not mean that the services are *affordable.* While it is arguable that cable and data (e.g. community, education, library) services are not currently essential, these and other new services may become so as people are increasingly required to use communication networks as one of the major means to fully participate in society.

The lessons learned from the introduction, diffusion and use of the telephone are useful guideposts for new networks and services. Once a luxury good, telephony has become essential for social participation and integration as well as the daily economic activities of individuals. It can be expected that *over time* some new networks and services will similarly be used for a range of social and personal activities in addition to entertainment and commercial services. Among others, these social needs will involve: social contacts; volunteer and community groups;

disabled and housebound users; education, health practitioners; social agencies and emergency services. Rather than a fast-paced, expensive introduction of new networks and services, an evolutionary approach would likely be in the best interests of subscribers and providers.

4.1.4 Policy Role

As has been the case historically, the role of public policy in the emerging competitive environment will be necessary to achieve the required balance between meeting the needs of the public, the carriers and those of commercial and non-commercial content providers. Another important public policy role will be managing the overall structuring and setting the rules of the road for our new communication system. Both the Telecommunication and Broadcasting Acts clearly identify content and access goals which create a framework for the development of new services and availability of traditional services. These goals were reaffirmed by the Convergence Hearing Order-in-Council (P.C. 1994-1689). These stated policy goals for Canadian culture and content have implications for basic and essential services for wire-based and wire-less delivery systems. Public policy proscribes affordable access and social, cultural and economic goals as well as levels of service ("reliable" and "quality") in Section 7 (Introduction and subsections (a), (b) and (h)) of the Telecom Act.[1]

1 Chapter B-9, Broadcasting Act, Statutes of Canada, Vol. 1, 1991; Telecommunication Act, 1993.

4.2 Current Definitions of Basic Service

Basic service for individual communication services has different meanings depending upon the network under consideration. The four main means of communication where the concept of basic and essential service is considered to apply are telephony, cable television, off-air broadcast and satellite service. There are also functionality and content dimensions to basic service specific to each communication service. Functionality in telephony is defined by tariff obligations. Content for cable and some satellite services is defined by regulation under the Broadcasting Act.

4.3 Telephone Service

Primary or standard service for telephony is generally defined in Canada as a flat-rate service which includes individual line service, two-party line service, four-party line service and trunk line service. Individual line service is the most common service provided by local telephone companies. The package of services or functionality will vary by company. The services and functionality which are generally included for many subscribers are:

- a telephone number
- a jack on customers premises
- termination on a switch in the company's central office
- connection between jack and the company's central office
- signalling method (rotary dial or Touch-Tone)
- access to dial tone
- access to local calling (voice bandwidth)
- access to toll calling (voice bandwidth)
- local usage within a defined local calling area
- access to directory assistance, repair, operator services
- telephone directory and listing
- access to optional calling features (where available)
- access to 911 (where available).[2]

Digital line upgrading, currently being undertaken in most areas of Canada, will become part of primary or basic service. Additional charges are applied for some existing services even though they may be used by a majority of residents in a market area, e.g. Touch-Tone, access to 911 and the use of optional services.

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[2] See Bell Canada, Response to Interrogatory, Bell (CRTC) Nov. 94-101 RRFI, January 31. 1995.

4.4 Cable Television

Basic service for cable depends upon the class of service. There are three different classes for cable. Class One applies to markets of 6000 or more subscribers. Class Two is for subscriber bases of between 2000 and 6000. The third grouping under Part III of the Cable Regulations applies to markets of less than 2000. These latter two classes feature lighter and more flexible regulation than Class One. Class One basic service is defined in some detail by regulation, but all three classes are guided by a CRTC requirement for a preponderance overall for Canadian services.

Basic service for cable for most Canadians generally consists of a coaxial cable connection and regulatory determined content for different tiers of service. The lower band of 12 channels (2-13) is used to technically define the basic level of service. Minimum content requirements on this band are also defined. Subscribers have optional access to higher levels or tiered and packaged services and pay-per channels. The cable currently operates in analog mode and is expected to be upgraded to digital over the next few years. There is variation in the number of channels and content that is offered by different companies at the basic level.

For most Canadians, the basic tier in cable must include all local CBC (French and English) and private television broadcasters. Any provincial or territorial educational authority in the market must also be included. In addition to these requirements, basic may also include a maximum of three U.S. commercial and one public channel as well as any specialty channels which have been authorized for basic carriage the CRTC. Local public and private AM and FM radio stations, with at least one representing both official languages, must also be included in basic. A local community channel must also be provided in the larger markets.[3]

4.5 Satellite and Broadcasting

The Broadcasting Act provides for the local availability of private broadcast signals and the national responsibility of the C.B.C. to provide off-air signals to all Canadians. The Act also requires the delivery of service in both official languages and to benefit the needs of the disabled and aboriginal cultures.

With the current changes in satellite delivery of content services, e.g. DTH and DBS, basic service is considered in this report in terms of CRTC regulated undertakings which are delivered to users by local cable distributors. Services which can be offered are determined by the regulator. With respect to DTH service, the federal government has issued an Order-In-Council (P.C. 1995-1105) to the CRTC on its policy for hearings and licensing. This policy

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[3] For a more detailed understanding of the rules and carriage requirements see Sections 9-11, 16 and 23-26 of the Cable Regulations. For other broadcast related policy, including satellite service, see the Broadcasting Act.

process will address content and service issues. As with cable and broadcasting policy, decision making by the CRTC with respect to satellite service will be guided by a requirement for a preponderance overall for Canadian content.

SECTION FIVE:

AFFORDABILITY: ISSUES TO DATE

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AFFORDABILITY: ISSUES TO DATE

5.0 Affordability: Issues to Date

Pricing and affordability will be among the important variables determining the success of the Information Highway. The whole point of defining basic service is to ensure that everyone, regardless of income level, can afford at least that level of service. Pricing levels affect commercial interests' investment decisions and profitability. Pricing will also affect consumers' abilities to access, participate or use and benefit from existing and new networks and services.

The debate on pricing centres around the tension between affordability and just and reasonable rates. The concept and practise of "just and reasonable" rates has evolved over the years, but still tends to reflect a commercial view. This is rate setting to recover the costs of providing a service as well as earning a reasonable profit. From early in this century, just and reasonable rates were taken by the regulator of the time, the Board of Railway Commissioners for Canada, to be whatever rate level and rate structure was set by the telephone company. Later, the CRTC considered "just and reasonable" in much wider terms which addressed, to some degree, social and affordability criteria.[4]

The "just and reasonable" rate criteria is closely associated with penetration rates. The high penetration rates of cable and telephony ostensible suggest or imply that these services are *affordable.* Penetration rates do tend to be useful as indicators of service use at the margins. However, this approach is not without its limitations. For example, in telephony the oft stated penetration rate if 98% does not include the Yukon or NWT, Indian reserves, Crown lands or large collective dwellings, such as senior citizens' homes or military barracks.[5] For both cable and telephony, penetration rates and "just and reasonable" cost criteria do not adequately consider questions of financial hardship, the essential nature of service or whether these services

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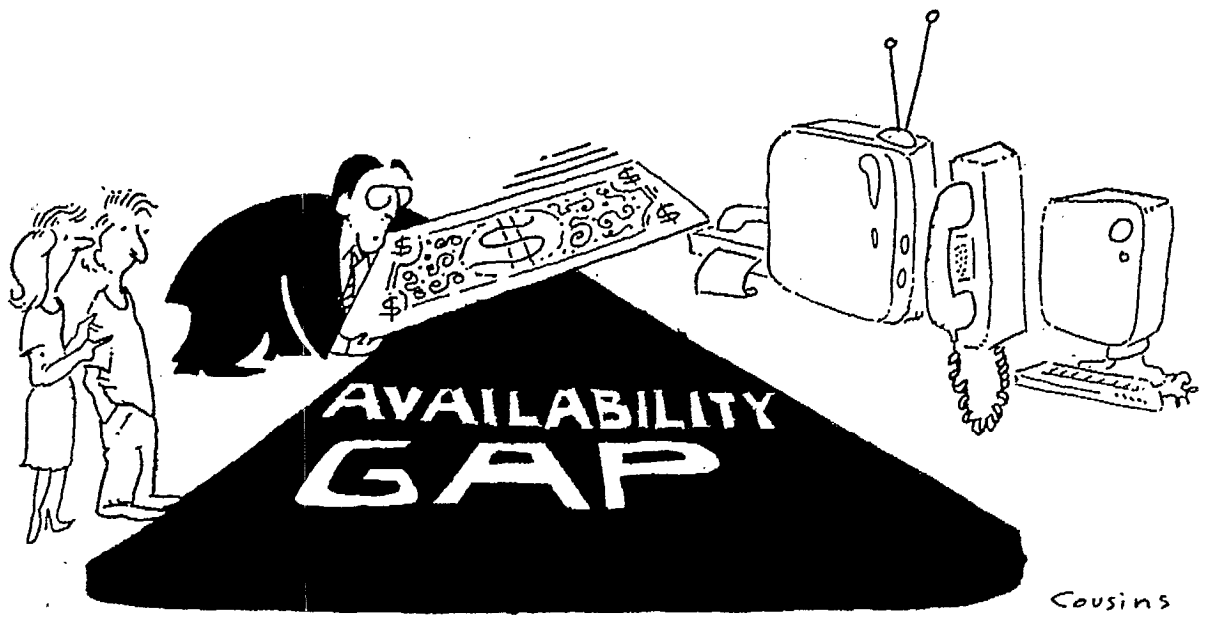
4 Babe, R. (1990) Telecommunications in Canada. Toronto: University of Toronto Press, pp. 164,168.

5 The sample on which this figure is based was designed to represent app. 98% of the remaining population.

are affordable given the *amount of income* subscribers must expend for access and use. The second dimension of this tension then, affordability from a subscribers' perspective, refers to what they are able to pay for a product or service based on their financial circumstances without experiencing some degree of hardship or a risk of exclusion.



5.1 Challenges

There are two major challenges involving affordability and the Information Highway. These are the current policy shift to cost-based pricing and, the pace and cost of the introduction of new utilities and content services.

5.1.1 Changing Pricing

Cost-based pricing narrows policy considerations from wider social, cultural and economic value and goal determination to narrow interest economic goals. One of the problems associated with cost-based pricing is the seeming inability of regulators and industry to accurately determine cost allocation and measurement of local access facilities for different types and levels of service. However, under rate-rebalancing and competition affordability of basic service is also under pressure resulting in the need to find new methods of cost allocation, contribution and cross-subsidization to ensure that service is available and affordable to all

Canadians to meet social and other policy goals. While this debate seems to be most focused on telephony at the moment, the same issues will likely arise in cable competition.

Policy has an important role in mediating these challenges. Social goals are equally as important as economic in telecommunications policy. The inferences of Section 7 (subsections (a), (b) and (h)) of the Telecommunications Act are clearly meant to address problems of access, affordability and income disparities. Similarly, Section 3 of the Broadcasting Act stipulates accessibility, affordability and social goals. This Act also mandates contributions from parties to help achieve these objectives.

5.1.2 New Services

The risk of setting policy that affects basic essential service only using economic theory, is that many Canadians (e.g., location, income) would not have any services available to them, or if provided, would not be able to afford these.

The pace of development and introduction of new services also has an impact on basic essential service. Some propose that the pace of development should be immediate and ubiquitous. Others argues that it should be incremental and based on response to demand and the availability of resources. Proponents of a quick modernization of the networks and roll-out of new services argue for increased basic rates to help cover the cost of upgrading. All subscribers would contribute to the costs of the system whether they used the services or not. The rationale underlying this approach is that the new technologies will more likely succeed, the more people are hooked up and using the system. However, this view does not address affordability or the availability of the system in all but the most lucrative markets.

Others, including both public interests and some commercial providers, prefer a gradual approach - a transition based on demand and availability of resources. Available resources includes those necessary to build the networks and sufficient levels of consumers' available disposable income to access and use these services. This approach is viewed by these interests as more a more efficient and less risky means of targeting investment and will, at the same time, help keep basic service affordable. Spreading costs over a longer period and differentiating types and levels of service would meet a broader range of social and economic objectives.

> *While consumers may ultimately welcome the development of the Information Highway, they are not awaiting its arrival with impatience or a sense they are lacking in services today.*
>
> *Earnscliffe Research and Communications*

5.2 Social Trends

Current barriers to access, including availability of service and cost, as well as a

persistent social trend featuring falling incomes suggest that a gradual transition approach to the development of the Information Highway would be in the wider public interest. A transitional developmental approach featuring different levels of utility service (i.e., existing basic utility, narrowband, eventual ubiquitous or selective broadband) coupled with continued regulatory oversight over basic access costs, service requirements and contribution mechanisms will be required to achieve economic and social objectives. This approach would also ensure the orderly development of our communications system allowing efficient investment by carriers and content providers.

Low income consumers and those living in rural, remote and small market locations already experience affordability barriers for existing basic service. There also tends to be sensitivity by other consumers to higher rates than they currently pay for service. A good example is the recent negative reaction by subscribers across Canada to the negative option cable rate increases. The costs of set top boxes, computers, modems and other access technologies are, and will continue to be, a barrier for many.

Contrary to this view, some providers expect that there will be a strong demand for new electronic-based information products and services, as well as a shift in existing consumer expenditure patterns away from traditional commodity formats to Information Highway delivery (e.g., music, books, news, etc.). It is likely that high income earners, those largely forming what has come to be described as the "information elite" - the "haves"- may fit this model. Certainly, the strategy of focusing on the "communication intensive household" (which represents the top 20% of the market) being pursued by a number of telecommunication providers in other countries gives credence to this view.[6] A recent Canadian study found that those with high income and better education tend to look forward to the Information Highway more than others. Of those earning less than $30,000, 65 % were indifferent or don't look forward to it. In the $45 - $60k range, only 52 % were interested, but 56 % of the $75k plus income group were in favour.[7]

As shown in the more detailed analysis on rural and northern locations in Appendix One of this report, communications is essential to most Canadians economic, social and cultural needs, however, affordability has been, and continues to be, a real barrier. For rural subscribers, the existing basic and essential package in telephony is a fundamental requirement to meet users' needs, particularly in the areas of emergencies, sociability and personal business. However, many rural residents are dissatisfied with the cost and quality of existing service. In a survey of rural residents (see Appendix One) 23 % were dissatisfied with the cost of local service and 38 % were

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6 Telecommunications Workers Union, Presentation on the Ameritech Model, January 16, 1995.

7 Earnscliffe Research and Communications, Canadian Opinion and the Building of the Information Highway. January, 1995.

not satisfied with the cost of short haul long distance service. The case study on the North in Appendix One shows that, historically, quality of service has always lagged behind the rest of Canada and pricing continues to be an affordability problem. Many northerners still do not have access to the existing levels of basic service and at affordable rates enjoyed by Canadians in the South. This has the potential to become a more acute problem with the Information Highway.

5.2.1 Consumer Demand

Recent surveys suggest that for the majority of subscribers there may not be strong demand for new Information Highway services. Statistics Canada analysis on the income of Canadians has found that there has been a consistent decline in income levels and disposable income over the past several years. With persistent public and private sector employment cuts, the scarcity of new "good" jobs, and the tendency for new jobs to be in the lower wage service industries, this trend is not expected to change for some time.[8] This means that it is unlikely that there will be strong demand for new utility and content services. More importantly, these trends also mean that there are *existing affordability problems* for current basic and essential service access by subscribers in general and particularly for those who have been traditionally disadvantaged.

These affordability and class challenges to participation on the Information Highway are also supported by a recent study conducted by Ekos Research Associates Inc. (1994). In constructing a model or typology of the socio-economic grouping of Canadians, this study, *Rethinking Government*, found that 41 % of Canadians were "economically distressed" and another 16 % forming part of the middle class were "economically insecure" (pp.90-95). Of the remainder, 24 % of Canadians formed the "secure" middle class and 19 % belonged to the "insiders". The insider or high social class represents upwardly mobile, high income Canadians. This group is likely to correlate with the carriers initial target market for new services - the communication intensive household. There is less certainty about the economic ability of the 40 % of Canadians in the middle class and, in particular, the 41 % in the lower social class to fully participate in the Information Highway.

5.2.2 Measuring Affordability

A good measure of affordability is the percent of income spent on a service. At a given price level, communication services will consume a higher percentage of a lower income family's earnings than of those with higher income. With price increases, those with median or lower incomes will have to expend a substantially higher percentage than those with higher

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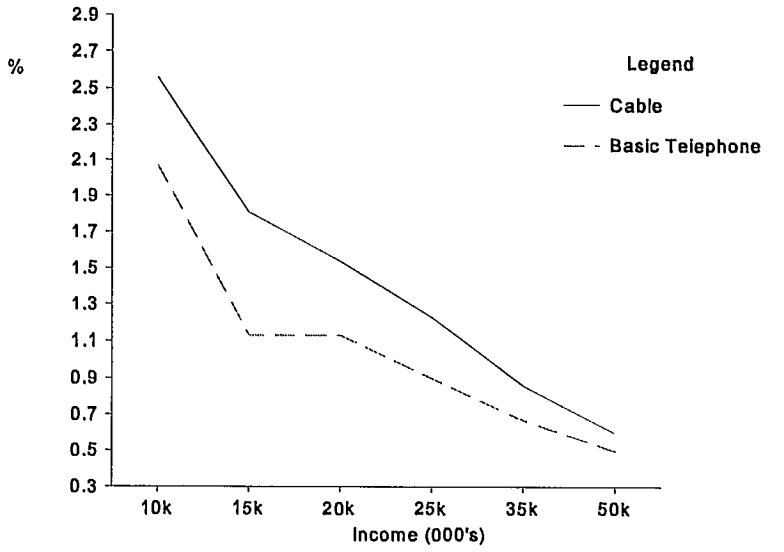
[8] Statistics Canada, Income Distribution by Size in Canada, 1993.

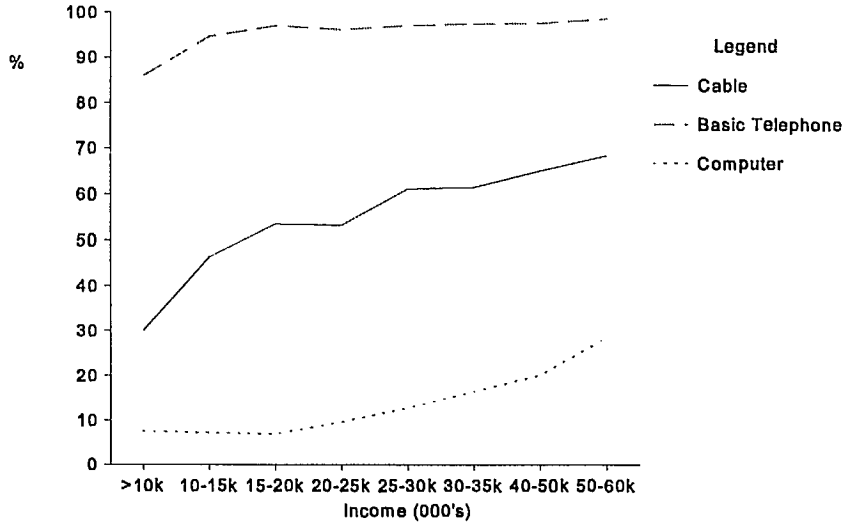
income (the "communication intensive household"). This measure of affordability tends to give a much clearer picture of the challenges faced by many people to have service and the importance attached to service by these people rather than the simple and more obtuse measurement of penetration rates. Affordability challenges are demonstrated by the following graphs in Figure One.

The first graph shows the total per cent of income spent by Canadians for basic cable and telephone service. The second graph shows how those with higher levels of income are more likely to be able to afford different types of *existing* technology or communication service. It is interesting to note that basic telephone service is considered by almost all Canadians, regardless

Income Expenditure as Per Cent



Service/Equip Penetration as Per Cent



Source: Statistics Canada, 1992.

Figure One:

of income level, as an "essential service". In fact, lower income Canadians spend five to six times more of their income for this obviously *required* service than top income earners.

A study on telephony released this year, "The Consequences of Rate Rebalancing for Low-Income Canadians" (May 1, 1995) clearly demonstrates that the affordability of *existing* basic and essential service will be a major challenge for a large number of Canadians, and policy makers, let alone the host of new basic and essential service problems which may arise in the context of access to the Information Highway.[9]

This survey of 881 low income Canadians found that 27% did not have telephone service. Only 11% of these cited lack of need as a reason. When asked how they would cope with a $6 increase in the price of local telephone service, the 584 who had service responded overwhelmingly (69%) that they would have to cut back on other, often essential, goods and services. Fifty eight percent said they would cut back on long distance service and 15% said they would have to cancel service as a result of such price increases. In a comparison of the importance of local and long distance services, the vast majority of respondents (77%) cited local service (19% cited long distance).

The study demonstrated the essential nature of basic telephone service and the serious difficulties for social and economic participation and integration for those who would have to do without such service under rate rebalancing. Moreover, the survey showed that in terms of affordability and financial hardship, existing basic and essential service is considered so important "that people will choose to cut expenses for other products and services, often for such necessities as food and clothing, rather than lose the service". It is particularly interesting to note that in the context of the current debate of whether cable is an essential service the results of this study tend to suggest that basic cable service is considered essential by many low income Canadians. For example, results show that faced with an increase in local telephone rates people would cut back on basic necessities such as food (20.4%) and clothing (21.1%) *before basic cable services (8.9 %).*

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[9] This survey was undertaken by La Federation Nationale des Associations de Consommateurs du Quebec and the National Anti-Poverty Organization with the assistance of the Public Interest Advocacy Centre. It was submitted as evidence in response to Public Notice Telecom CRTC 94-58.

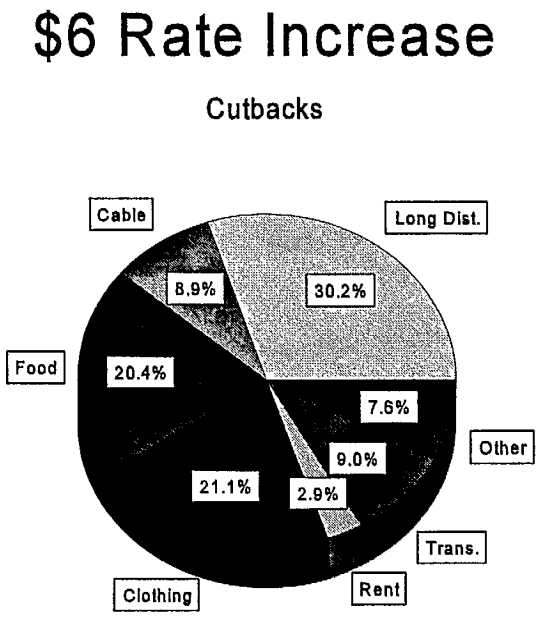
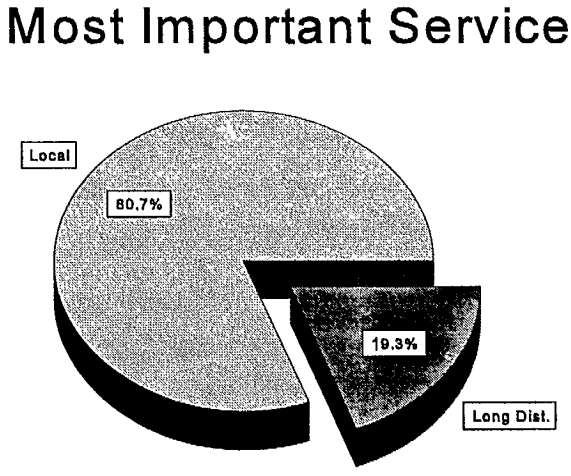

$6 Rate Increase
Cutbacks
Cable
Long Dist.
8.9%
30.2%
Food
20.4%
7.6%
Other
9.0%
21.1%
2.9%
Trans.
Clothing
Rent

Chart One:


Most Important Service
Local
80.7%
19.3%
Long Dist.

SECTION SIX:

A CHANGED ENVIRONMENT

SECTION SIX: A CHANGED ENVIRONMENT

6.0 A Changed Environment

6.1 Utility Component

There are two dimensions to Canadian public networks. These reflect mixed goals by different interests over the use of these technologies for economic activities and for public utility functions. Commercial providers generally operate and consider the utility as a commercial infrastructure necessary to provide a wide range of commercial products and services. Service and functionalities delivered as part of the basic utility have, until recently, reflected the existing technical capability of the utility or been required through regulation. Investments in technology and relaxed regulation have created the means for a wider scope of wire and wire-less network utility options.[10]

Telecommunications is seen by providers as a strategic investment. Utility investment and content development have largely focused on the widespread and innovative use of advanced services by the business community to date. Current revenue increasing strategies falling under the umbrella metaphor of the "Information Highway" involve extending some of these capabilities and products, as well as other new services to residential users.

Many public interests and individuals perceive the purpose of the Canadian communication networks in much broader terms than commercial providers. In this view, networks are considered as an essential service or a public utility. As a public utility, networks are necessary for economic, social and cultural development, participation and integration for society at large. The major concerns of the public are affordable access to, and the use of, the networks and services. Usability implies a certain standard and quality of service which meets a minimum set of user needs for network activities.

There is some differentiation of basic utility needs by the public. These needs tend to vary whether users are located in urban markets or smaller, less technically developed rural and remote locations. Urban areas generally feature well developed networks and will, under current

[10] The term wire-less in this report includes satellite delivery.

provider construction plans, be the first to have opportunities to benefit from Information Highway upgrades. The main basic service issues in these markets will involve the ability of competition to provide the required minimum services, the cost and affordability of access and the content services included in these packages.

In other markets challenges will include the availability of a quality and affordable utility regardless whether or not it is provided on a competitive basis, as well as the required minimum content and services. Notwithstanding that the pace of development may vary in different locations or that more advanced utilities and services may be available in urban areas, from the public utility perspective there are utility and service components which are commonly shared minimum basic service requirements. Given that it will likely take ten to fifteen years at a minimum to roll out different levels of Information Highway service to all locations, it is important that common ground rules or minimum standards for basic and essential services are established to maintain existing levels of service and to serve as benchmarks for network development and pricing policies.

Current policy is that, where economically feasible, there will be competition in the provision of the basic cable and telephony utilities. This reliance on market criteria will likely exclude a number of rural, remote and small market locations. A market approach will also feature higher basic rates and will therefore create affordability barriers for a large number of users. It should be emphasized that the degree of competition in each market area is still subject to speculation. In some areas it is expected that there will be competition between traditional cable and telephony providers as well as wireless, PCS, cellular and satellite entrants. In other areas, there may be a smaller mix of competitive options and perhaps as little as satellite and a single wire-based option providing different services in a single market (e.g., far North).

6.2 Content Component

In addition to the basic utility a number of content services are deemed basic and essential services and required through regulation. For example, cable and satellite must offer a number of specified Canadian content and cultural program services. Many other capabilities and services, both existing and new potential offerings do not meet the "essential" requirement for basic service. The ability to access a number of these may, however, be considered important. If demand is sufficient, they are affordable and if the services are necessary some of these may migrate to basic and essential status at some point in the future.

Though many Canadians support an open competitive environment for many content services, there is an equally strong desire for continued regulatory control and, content, funding and service requirements in the development, dissemination, accessibility and affordability of Canadian culture and content, whether or not these are commercial or non-commercial services.

6.2.1 Policy Challenges

Recent studies have shown that Canadians want choice of channels, programs and other information content, offered in a variety of ways, such as pick-and-pay, or as optional and custom made packages. However, Canadians also desire a diversity of Canadian broadcast and information content as part of guaranteed service. More than two thirds of Canadians support the idea that minimum Canadian content requirements should continue and that the CRTC should set these. Canadians believe that government support for diverse content products, such as films, books, music, television and other information products is required to maintain a distinctive Canadian identity and to meet national and local needs.[11] With the increasing array of programming and other electronic forms of Canadian information the challenge is to devise a process to determine which services, networks and channels should be included in the defined basic and essential basket and which should be accessible options from basic service or provided at the discretion of companies.

The federal government has stated that its policies and regulatory framework for the support of the production, distribution and access to Canadian culture and content will continue.[12] To achieve the goals of this policy and regulatory framework it will be necessary to continue to include a number of content services in basic.

There will be increasing capacity in the networks which will permit a number of new services to be introduced. Therefore there is no need for the existing basket of content services, which serves as a cornerstone of public policy and meets diverse user needs, to be unwound to further increase capacity. Instead, this basket should used as a base upon which new services are introduced. This approach would meet the objectives of policy and meet the changing needs of both providers and users' as new technologies and services are introduced. The only rationale for unwinding the existing basket of basic services would be to create conditions for commercial providers to increase revenues by supplying these services as individual or packaged commodities. Such a narrow and biased approach would serve the interests of a small group of companies, but would not serve the overall and wider public interest. Alternatively, a flexible approach built upon the existing base of basic and essential services would not burden basic subscribers with the cost of receiving and paying for unwanted new channels or services. At the same time this approach gives wide latitude to providers to offer new services in various preset or custom packages or in single service formats as part of either basic or optional services.

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11 Staging the Future, Human Resources Development Canada, January, 1995.

12 See, for example, Order-in-Council P.C. 1994-130.

6.3 Market Scenario

The competitive scenario potentially offers benefits to the public. It is difficult to assess the implications of competition for basic and essential service because providers have not yet publicly stated what marketing, service and pricing strategies each will offer. The unavailability of this information may be due to the providers' protection of proprietary information or these strategies are still under development. However some general strategies and likely practises can be assessed.

Ideally the market place would provide a choice of utility providers. Notwithstanding rate rebalancing, competition is expected to place downward pressures on pricing as providers compete for market share. To attract and keep customers, it would be expected that as part of these strategies there would also be an incentive for suppliers to offer a quality utility connection, a basic set of services at a basic access price and a series of optional content services. Some of these optional or competitive services would be expected to migrate to the basic level over time based on user demand and cost. In this view, to define a set of basic services and functionalities could be restrictive for competitors. A number of market players would also argue that this would be unnecessary given that competition may force providers to supply an increasing number of services to acquire and maintain a customer base. This argument for a continually expanding set of basic services, of course, does not address upward pricing pressures that may result for subscribers as providers attempt to recoup the cost of providing more products through competition or, rate rebalancing.

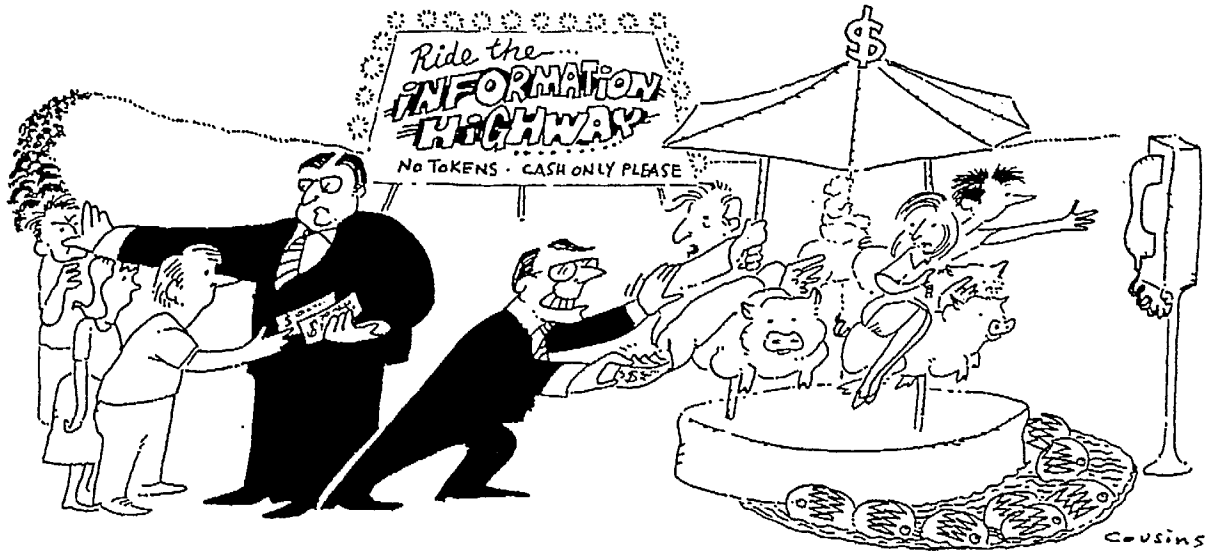
Over the course of time, through a carefully managed transition period such speculative outcomes may be realized in many segments of the market. Major road blocks which may limit this scenario are the current required basic and essential services which are mandated or statutory requirements under the Broadcasting, Cable and Telecommunication Acts, the level of demand for new services, and the ability of subscribers to pay for new and existing services.

6.3.1 Risks in the Market Approach

> *A competitive market won't provide universal service or basic essential service.*
> *Government of Saskatchewan*

At the most fundamental level, to achieve competition for the basic utility alone would necessitate unwinding or unbundling the existing minimum service and content requirements of the various Acts and service obligations. This could include shifting Canadian culture and content requirements to an optional package from a required basic service or, the removal of telephony service obligations leaving only dial tone and a single digital line as basic. Similarly where there are not a large number of competitors the potential for pricing to tend upwards to a maximum return rather than at marginal cost will exist. There will likely be upward pricing pressures for suppliers in order to recoup investments and

maintain traditional profit levels expected by shareholders.



> *We need to define a minimum standard level of physical connection to every household and define the means of paying for this.*
> *Ontario Telephone Association*

Also at risk would be the availability of required services and the provision of these in all locations in Canada. Market interests introduce products and services on an incremental basis to meet goals of profitability and corporate growth not to primarily serve the needs of subscribers. This may lead to the introduction of a number of necessary services that the majority of users require. However it may also preclude the availability of *all* needed services for Canadians or for basic service at all for those individuals residing in market areas that do not meet the profitability benchmarks determined by providers. These affordability and service distortions and risks will be greatest during the developmental or transition stage which, by all accounts, will range from between 5-7 years for large urban markets to 15-20 years for other areas of Canada. This, of course, is assuming that a quick roll-out is pursued instead of an evolutionary approach to upgrading based on need and affordability.

6.3.2 Support for Competition

A strong sentiment of support does exist by the public for competition in cable and telephone services including participation by wireless and satellite providers. In the near term,

these latter options may be of particular benefit to rural and remote users who face price and utility availability barriers with few, if any, alternatives. Urban users may also benefit from these newer services but the need in these markets is likely less pressing given current service levels and more immediate competitive alternatives. The current user costs of existing competitive alternatives, e.g., cellular, suggest that these new services may have more niche (higher income) than broad market appeal.

As shown in Appendix One, in rural and northern areas competition in services is preferable to competition in utility. There tends not to be a strong incentive or market case for competition in these markets. Moreover, in rural and northern areas, network construction and upgrade costs are a barrier when market return is marginal or not viable. Existing problems in rural areas include: the availability and cost of single line service; line quality, particularly in smaller markets; and a small local calling area resulting in geographical cost disincentives arising from the need to make long distance calls to access a number of necessary services, e.g., medical, education, government, business, etc.. The North also faces service problems. This includes: under service in telephony, cable, broadcasting, and content; lack of access from home or local points of presence; poor line quality; and a too narrowly defined (geographic) local calling area. Modern services, such as email and conferencing, are not possible in many locations due to poor technology and infrastructure quality.

6.4 Managed Scenario

Throughout the extensive body of submissions made by different public interests to the CRTC during the 1995 Convergence Hearings, the IHAC proceedings during the past year and literature from other sources[13] , while carefully managed competition is expected to provide benefits, there is public concern and a desire that at least during the confusion of any transition period the vagaries and pitfalls of uncontrolled market decision making should be avoided. As such, in the near and perhaps in the long term universal service at affordable rates for any basic utility option should not be left to market forces alone, but established through public oversight and regulation.

6.4.1 Symmetrical Regulation and Evolutionary Development

To be effective this would require a ***symmetrical regulatory approach and evolutionary development model***. In other words, a **bundled communication package** featuring an upgraded

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13 For example see Basic Telephone Service, PIAC, 1994; Telecommunications Toward 2000: Are Rural Canadians Getting Their Fair Share?, PIAC, 1993; "The Consequences of Rate Rebalancing for Low-Income Canadians", La Federation Nationale des Associations de Consommateurs du Quebec and the National Anti-Poverty Organization, 1995.

definition of basic and essential services offered under a fixed pricing regime would need to be established for the public network components of the Information Highway. Any competitors offering service in a particular segment (e.g. cable, telephony, wire-less) would be required to operate in the market under the same terms as others and provide the same minimum utility quality and bundled package of services, with the same minimum pricing controls.

Bundling a basic essential package would be necessary because, as has been evident in other sectors which have been deregulated such as financial services, if subscribers were to aggregate existing services that in future were only available as unbundled, separate services, there is a strong likelihood that they would incur higher per unit costs and thereby higher aggregate expenditure. A communication package would therefore need to include a defined quality and capacity of utility, a basic slate of Canadian broadcast, information, public service and utility functions and an affordable flat rate structure.

Given that the Information Highway will be built upon an existing base of long established and successful utility service, basic and essential services, particularly those that meet policy objectives, should not be diminished or unwound in the move to competition. Additionally, to meet affordability objectives, users should not be required to subscribe to a higher level of utility service than they already have to maintain their current services. Defining competitive and basic utility levels and services is a precondition to ensure affordability because subscribers would only have to pay for the services they actually use. Moreover, basic users would not be forced to subsidize (cross-subsidize) speculative network and service investments. Only the actual users of higher broadband utilities and services would pay for these. In fact, resources would be most optimized and affordability maintained if different levels of service (e.g., narrowband ISDN) were introduced geographically (community) and individually (household) over a reasonable evolutionary transition period. For example, using Narrowband ISDN and compression technology, virtually all the services promised by broad band enthusiasts can be delivered over copper wire, at a fraction of the cost. The cost of upgrading to narrowband would be about $300 per household versus $3000 for an integrated broadband network.[14]

6.4.2 Affordability

In many of the public interest submissions to the CRTC convergence hearing and IHAC there was a general view that there should be a minimum flat rate to basic utilities with defined essential services for all users. Many groups also

> *There must be affordable access on a universal basis as a cornerstone of any policy, as opposed to a strict user pay system.*
> *Ontario Telephone Association*

[14] "Developing the Information Age of the 1990's: A Pragmatic Consumer View", Consumer Federation of America, 1992.

felt that there should be no discrimination in the use of any utility at the basic level based on measured service, time of usage, subscription or geographical location. Such cost barriers are seen as particularly problematic for low income Canadians, the disabled, seniors and others, including those who face literacy barriers using technologies. For example, in the North (see Appendix One) costs are already two to three times higher for cable and telephone service than in the South. Northerners currently make about 60% more long distance calls than other Canadians, often just to access services which are available locally in the South. The cost of long distance calls in the North are 25% - 136% higher than the rest of Canada for the same distance and the cost of cable in some areas of the North is 24% - 110% higher than elsewhere in Canada.

It should be noted that a *flat rate* is not necessarily an *affordable rate*. It will be important to assess how rates are determined and applied as well as what offsetting pricing mechanisms may be needed to achieve affordability. For this managed scenario option, public policy will be required on an ongoing basis to mediate these challenges, set pricing limits and determine contribution and service requirements.

6.5 New Services and Functionality

One of the problems facing governments in policy making and, carriers and providers in targeting resources in the development of the Information Highway is ascertaining which information and communication products and services are likely to be needed, demanded and actually used by Canadians. A number of surveys and research studies have been undertaken over the past year or so in attempts to provide some direction on this issue. Until new products and services are actually tested on the networks, much of this remains speculative. This is an important point when considering a basket of basic and essential services. Current required services can be identified. The importance of such functionalities as interactivity or the possible inclusion of new content services such as a public lane in basic can also be delineated. However, it is too early to tell in the current dynamic environment whether other particular services or capabilities fit the requirements for "basic and essential" for individual users. It is important to emphasize, though, that a number of these may be essential from the perspective of *geographic* universal accessibility (i.e. optional connection through a local access centre).

Much of this market research has tended to focus on capabilities or services which for individuals to access and use will require more than a basic level of utility and functionality. Most governments, alone or in partnership with the private sector, are focusing resources on the development of educational, health, community and government service networks and applications. Access to a number of these services will be possible through existing basic cable, wireless and telephony services, for example, TouchTone or Vista phones or, educational channels. However, the public will need to purchase more expensive premises access technology

(computers, cable or telephone modems, etc.) and a broader band utility service to access and use the full array of proposed services. Similarly with commercial products and services, subscribers are already able to access some services, e.g., home banking and Call-Mall, using existing basic service. An increasing scope of services will likely be available at this level. However, many of the new proposed services, such as entertainment, multimedia and so forth, will require upgraded utility service, functionality and access equipment.

6.5.1 Consumer Preferences

Recent surveys indicate that public services (non-commercial and local information content) will represent a large part of consumer demand. Distant learning, library, community information and social interaction consistently rank at, or near, the top of most of these surveys. While commercial services, such as news and video-on-demand, are also rated relatively high, other services, such as home shopping or video games, rank substantially lower.[15] Many of the services which show an apparent low level of interest, e.g., home shopping, still may represent a large enough market niche to be profitable. An Earnscliffe Research and Communication (Jan. 1995) study of consumer demand and the Information Highway found that of 31 potential services which may be offered only four were of interest to 50 % or more or respondents. This study also found that the potential for people using new services is very much based on price sensitivity. Many respondents said they would take a hard look before using a new service or wait until prices have dropped and a service is well developed before using it.

Competitors may pursue a market strategy of making these services available as options at the level of basic service. However, basic rate payers may also be required to subscribe to higher levels of utility capability or purchase/rent customer interface equipment to actually access and use a number of these services. For some services, access costs will likely be offset by advertisers or the carriers themselves in order to reach a maximum number of potential customers. The competitive market place could also cause providers to expand functionality or basic services at their own cost in order to be successful in gaining and keeping market share.

6.5.2 Evolution of a Basic Service Package

Provider revenue potential will be maximized when more people have access to new and enhanced services. Subsequently, one can expect that carriers and content providers will increasingly pressure regulators for specific types of basic service upgrades to maximize the

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15 For more information, see the Stentor Telecom Policy Inc. submission to the CRTC convergence hearing Order-In-Council P.C. 1994-1689; the Globe and Mail, February 6, 1995, Angus Reid Survey; or What Canadians Think About the Information Highway, Gallup Canada, 1994 survey.

income potential for these services. This would be a shift from the traditional practise of the regulator initiating upgrades. However, for the public interest, basic service upgrades should only be undertaken when they meet the wider social and economic needs of subscribers not just provider needs. The evolution of basic and essential service must respond to legitimate consumer demand and promote social well-being not accommodate the speculative investment of the market players. Moreover, the expansion of basic service must be accompanied by appropriate price adjustments, including contributions and subsidies, when appropriate, in order to keep the package of basic and essential service affordable.

Providers would likely wish to see a number of costly new service improvements become standard to both offset their costs of development and to maximize revenue potential. Regulators will need to ensure that minimum required utility, functionality and content are provided but will need to be wary of speculative social benefits put forward by providers as the rationale for treating a new service as basic or, in using portions of basic pricing to help pay for speculative utility or content development.

6.6 Public Space

With the success of the Internet, community, education and library networks, there has been an increasing demand from public institutions and individuals, for public space or a "public lane"on the Information Highway. Much of the evidence and submissions by public interest groups to the CRTC convergence hearing and IHAC, and information from interviews with some of these groups indicates that there is a high degree of interest or demand for local access to public information networks and services.

Access to these services as separate services or in a composite package could be made directly from the home, through a local institution, a local access site or could be made available through a commercial network provider. There is a rather compelling argument from public interest groups that these services should eventually be available from the home as part of the basic service capability. In other words, with the proper customer equipment, users would be able to directly access these as a local service using a basic utility. In some instances, a number of Canadians are already able to access some of these types of services. Current public data networks and services are largely based in urban areas, though province-wide initiatives exist in Manitoba and Nova Scotia.

6.6.1 Funding Public Space

If all Canadians are to have access to such public services through a public lane, methods will be required to combine these non-commercial network services into this laneway. As well, shared funding will be needed to achieve local and individual accessibility. Using an

evolutionary strategy, geographic universality may be a necessary step towards individual universality. This approach would ensure that these services are feasible to develop and affordable to access and use. Where public institutions or community networks operate their own local, regional or provincial service, these services generally exist as a "no-access-cost" service to users. For these to become part of basic and essential service would require some combination of policy support, regulatory structuring and funding participation or partnerships by governments, public institutions and organizations, as well as contributions from individuals, carriers and content providers.

This partnering and leveraging approach will be necessary to offset the costs of creating the public lane and delivering it to all users, either directly or through a local means of access. The alternative would be to socialize the cost of a public lane and its constituent networks through a higher basic rate or public lane access surcharge for all users. This could be a partial solution to accruing some of the required development and operation funds, but would risk creating affordability barriers.

Precedence for financial support from the market for this type of service already exists with the funding and capacity allocation requirements of community cable channels. A number of consumer groups argue that the community channel concept needs to be updated and extended to meet changing needs in a broadcasting *and* data communications world. Universal availability and access to public lanes or public space is seen by these groups as a fundamental right. Required funding by the private sector, government and public organizations is considered by these public interest groups as the most appropriate means to provide these public services as part of basic service - at no extra cost to users. This is not to say that beyond the "local accessibility" of these services there may not be a cost of some form (e.g., membership, transaction fees) when individuals actually use a particular service or a component of a service. For example, access to a government service may be at no cost, but the retrieval of a particular document may have a user fee attached. In another example, some community networks may have a membership fee, but are none-the-less available to any user as part of basic service.

As a comparison of how funding challenges for local and non-commercial content services are addressed in other jurisdictions, it is interesting to note that the Australian Broadband Services Equipment Group (Australian IHAC) recommended that public service networks (public lane) be entirely funded by the federal and state governments. They also recommended that content providers be required to commit at lease 10% of their expenditures to *local* content development.[16]

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16 Networking Australia's's Future, Commonwealth of Australia, 1995.

6.7 Community Networks

The traditional community channel and the new variant of this, the community data networks, are viewed by those using them as important communication services. The availability of funded community channels as part of basic cable is a regulatory requirement. Community networks, on the other hand, are not required by regulation or funded by carriers. The ability to access these locally using a basic utility is receiving large support from a growing number of Canadians. These users argue that this is a necessary and basic service in the Information Highway age. Community networks are a useful means of providing awareness and training in the use of networks and on-line non-commercial services and in meeting daily communication needs. Both types of community networks (cable and data) will also play increasingly important roles in meeting Canadian's non-commercial cultural and content needs as more services are provided electronically. They do this in a way which deepens and extends the federal government's Canadian culture and content policy goals. Non-commercial Canadian culture and content is broadly defined in this report as *social and cultural information, data or communication activities produced by organizations or individuals, alone or in groups, which is necessary to meet their daily social, educational, economic and cultural needs.* This content and these activities will become increasingly important as part of the mix of means to allow Canadians to fully participation in society as *citizens* in addition to being consumers. Given their comparable importance to the existing community channels, *funded* community computer networks need to be considered as a matter of policy for inclusion as a basic service. Funding should include government and private sector support. Private sector funding should consist at a minimum of a 5 % revenue contribution from all carriers and a similar percentage of content expenditures from content providers.

6.8 Interactivity

A broadened conception of interactivity is an important network feature for the discussion on basic and essential service. Currently, only telephony features interactivity at the basic level for most areas of Canada. For advanced networks and services there tends to be two views on interactivity. Commercial providers view interactivity as providing customers with the ability to make limited selections among products and services or, conducting a number of functions within a service, e.g. interactive home shopping, games, banking. This perspective tends to be more relevant to the increasing range of optional, competitive services available to local subscribers or, for those purchasing a competitive content service through a gateway or service provider. Many public interests, e.g., community, library networks, etc., discuss interactivity as a functional capability at the basic utility level. This functionality in the telephone system permits data as well as voice grade quality signalling. This type of interactive capability refers to a user-

controlled, fully switched (cable, telephony, wireless), two-way system of communication. This allows users to conduct information exchanges without being required to pay for an optional or intermediate service (e.g., connecting to a library, community network, school, etc.).

It is expected by many in the Information Highway debate that this capability will be available on cable and wireless systems, but not necessarily as part of the basic capability as currently exists with telephony. This will create asymmetry in network services. The potential extra cost to subscribers of extending this capability to a basic level in non-telephony networks could be an affordability barrier to many subscribers. This issue of interactivity as a basic service in different types of networks is one of the key issues which should be considered by regulators in the near future.

SECTION SEVEN:

REDEFINING

BASIC AND ESSENTIAL SERVICE

SECTION SEVEN:

REDEFINING BASIC AND ESSENTIAL SERVICE

7.0 Redefining Basic and Essential Service

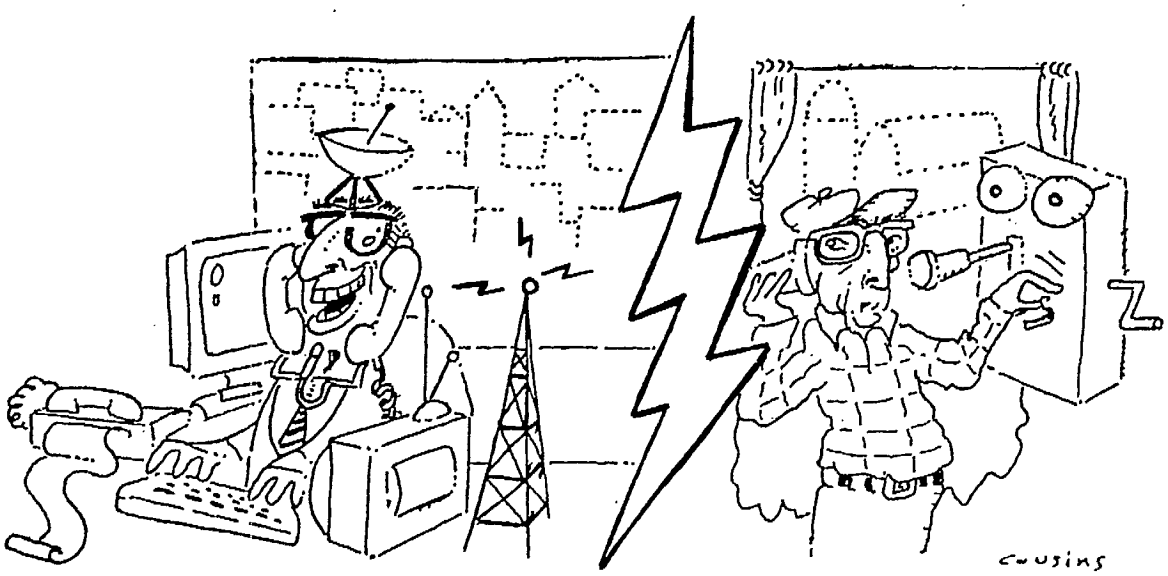
In our rapidly changing communication environment the debate about what should be included in the basket of basic and essential service, and what mechanism should be used to define and update this on an ongoing basis can be expected to continue unabated for a number of years to come.

The minimalist position advocates that other than a basic utility, this should be left to market driven decision making with no restrictions or requirements for any service or functionality. The maximalist view is that in addition to existing services there should be a plethora of public services, high technology interactive business and entertainment services running on broadband utilities to every home. The first scenario would erode and fail to meet the existing social and economic needs of subscribers and would impose new cost barriers to recreate the current minimum level of access. Such costs would burden or exclude many low income Canadians and others from affordable access or even the availability of service. The second view would increase the cost of access such that only the wealthiest minority could afford service. Both scenarios would exclude low profit markets from service.

In a market which relies increasingly on competition rather than regulation, suppliers will have an incentive to offer a wider range of services as part of a basic package than already exists. However, as a *public utility*, in addition to being a commercial vehicle, there is no guarantee in an open market that these will be the services users actually need or that they will be available throughout Canada. Moreover, as a matter of principle and as stipulated by the various communication Acts, in terms of universality, all Canadians require this access as part of their fundamental right in a liberal democratic market society to participate in society, its social and economic activities and to benefit from this. Communications has become one of the essential, common infrastructures, like transportation and financial services, which are the cornerstones of all Canadians' economic and social activities and interactions. With this level of importance, basic and essential service needs to be defined as **that level of service required for full participation in society.**

This does not mean that Canadian's must have all services. It does mean that they should

have a guaranteed, affordable access to an evolving, changing set of minimum required services and, optional and available access to other (e.g., competitive, broadband) services in future.



7.1 Mechanism

There is general concurrence of views that an effective institutional process needs to be established to determine changes in basic and essential service on an ongoing basis to keep pace with the dynamic changes in the market. While a number of new services may become "basic" through competitive behaviour and public use, others may need to be deemed essential through policy in order that users are able to access, use and benefit from networks and services or to meet statutory objectives. A wide combination of political, social and economic variables should be used to determine the components of "basic and essential" and to make recommendations on pricing to the regulator. In the absence of public advisory committees at the CRTC, an innovative approach that should be considered for this and other policy issues affecting the public interest would be to establish an **Advisory Panel**. This Ministerial Advisory Panel should report to the Minister's of Industry and Heritage. As part of its' responsibilities, the Panel should conduct ongoing, formal study's and include public consultation and participation in the decision making process.

7.1.1 Mandate

A number of industry and public interest groups tend to be supportive of such an approach. Concern was expressed by some industry players that such a panel should not become a new bureaucracy or have too wide a mandate. For example, content and access issues which will likely be of significant concern during the development of the Information Highway, would be suitable for such an Advisory Panel. Some thought that such a panel would be most useful if it operated arms length from the government.

7.1.2 Funding

An Advisory Panel should be funded by both industry and government and feature equal representation by public interests, industry and labour. Moreover, to be effective, the panel should be sufficiently mandated and funded to commission substantive study's and research to determine what best serves public policy, commercial and public interests in these communication issues.

7.2 Bundled Basic Service Package

There is no real consensus at the moment on what should constitute a bundled package of basic and essential service as we move ahead. As discussed above, some would rather not address or define this at all. However, the reality is that current definitions backed by policy do exist and these need to be reviewed and updated to meet minimum needs in the context of the Information Highway.

7.2.1 Time Frame

There is some urgency to establish a mechanism and undertake a redefinition of basic essential service given that these initiatives will have significant bearing on planned private sector investments and the wider government policy framework. These initiatives would be most usefully undertaken no later than the fall of 1995 as part of the implementation of government policy based on IHAC and the CRTC convergence hearing recommendations.

7.2.2 Methods of Defining Basic and Essential

Part of the challenge is to define a process of determining when a service should become basic as a matter of regulation. As mentioned before, economic and social criteria must be used in this process. The exiting package of basic essential service serves as a useful building block for this process. In the increasingly competitive market place, there are already cost and subsidy challenges which need to be addressed just to continue to provide existing basic service in all market areas. The resolution of these problems will need to be a first priority, but will also help

set the framework for considering the migration of new utility and content services to basic.

A number of private sector and public interests were asked how the components of basic essential service should be determined. They were also asked to comment on a proposed set of four criteria for this process. The proposed criteria (in some combination) were:

- That a certain threshold of consumer demand had been reached (e.g., 75%)
- The service in question provides a significant public benefit (e.g., 911)
- The cost of provision is negligible
- The service is required as a matter of policy.

There was no unanimity about the methods that could be used or if these criteria would be the best. Some take the view that basic and essential should be defined and driven by a "needs" model. By needs is meant the technologies, funding mechanisms, content services, local access sites, and so forth, necessary to bring new and required services to all people. This approach takes a longer term view of the development of our communication system and tends to consider needs more abstractly than when the concept is more traditionally defined in terms of the technical dimensions of required and necessary services, affordability, and cost of provision tensions arising from different market strategies.

Provider perspectives also varied on this issue. At a general level, some felt that the four suggested criteria could be a useful method for determination of services. It was generally observed that not all services may be essential or that some services may not be easily assessed using these criteria. For example, higher public policy issues (e.g., programming) may determine content. As well, technical necessity, e.g., TouchTone, digital lines, and the constraints or tensions arising from maintaining a sustainable competitive market may also affect the component determination process. Major competitiveness concerns largely involved the issue of non-discrimination - the need for symmetrical regulation so all providers would be required to provide these services or, through contributions (e.g., Carrier Access Tariff), compensate those actually providing these services.

Some felt that the level of take up should be a majority, whereas others did not feel that any threshold of demand should be used. There is a carrier view that rather than rigidly determining all basic services or relying too much on policy, instead, through the market, there will be an incremental development of new services or technology and consumer demand will influence this in a cost effective way. This view, based on economic criteria alone, is largely concerned with profit oriented commercial components and is less applicable to other, equally important, social needs.

7.2.3 Using Factors as a Guide

The term essential is somewhat problematic in this debate because it tends to be subjectively defined. This problem can be avoided if one starts from the criteria of availability and affordability, and builds on existing services using the general goal that basic and essential service encompasses all services needed to fully participate in society, at any given point in time. The four factors affecting basic and essential service - user needs, competitiveness, affordability and cost of provision, and policy dimensions of this decision making process - will need to be applied through some consultative mechanism, discussed above.

Some test for removing services from the definition of basic services should also be considered. For example, if it turns out that the benefits of a given, costly service are concentrated in a small number of users rather than spread throughout the public (e.g., long distance directory assistance, according to the telephone companies), it may be appropriate to remove all or part of this service from the definition of basic service.

7.2.4 Basic Essential Service Definition

Using existing basic services as a starting point, services and functionality in a **Bundled Basic Service Communication Package** available at an affordable, flat rate should, at a minimum, include:

Telephony Component

- *Installation of service*
- *A telephone number*
- *A telephone jack*
- *Single line service*
- *Termination on a switch in the company's central office*
- *TouchTone service*
- *Connection between the jack and the company's central office*
- *Access to dial tone*
- *Local Calling Area encompassing user's community of interest*
- *Access to Long Distance and information service*
- *Access to local usage*
- *Access to directory assistance, operator service*
- *Repair, maintenance for company owned equipment/lines*
- *Telephone listing and directory*
- *Caller ID Blocking*
- *Access to Call Trace*
- *Toll Restriction Service upon request*

- *Access to optional calling features (where available)*
- *Access to 911 (where available)*
- *Access to 711*

Cable Component

- *Basic existing utility*
- *Basic Canadian broadcasting and public service information package, e.g., education and community channels.*

Satellite Component

- *Basic Canadian broadcasting and public service information package, e.g., education and community channels.*

Other

- *Access to traditional off-air broadcast signals*
- *Special devices for disabled persons, as required*
- *Access (not time charged) for people with disabilities*

Positioning of existing services should be included in this determination process. Services and functionality which need to be considered for addition to this package in the near future (i.e. Advisory Panel or CRTC roles) would include:

- *Access to basic information services, including public services or public space computer networks*
- *Digital connectivity (access to advanced digital services)*
- *High speed data connectivity*
- *Automatic language translation*
- *Simultaneous voice and data capability (narrow or broadband ISDN)*
- *Switched (interactive) video capability (narrow or broadband ISDN)*
- *High quality interactive video capability (broadband)*

While access to, and use of, commercial services may be usage and/or time sensitive, public services (health, education, community, government networks) will need to be included at some point (whether from a transitional local access centre or eventually the home) as a basic capability. This will need to be included as part of the basic flat rate access fee. This will be

necessary because there is little or no market case in the development or pricing of these services. These services largely address social and cultural goals and needs, and a market approach would mean that many of these services would not be developed or made available or, would be provided at costs that would be a barrier for many people.

SECTION EIGHT:

REVISITING AFFORDABILITY

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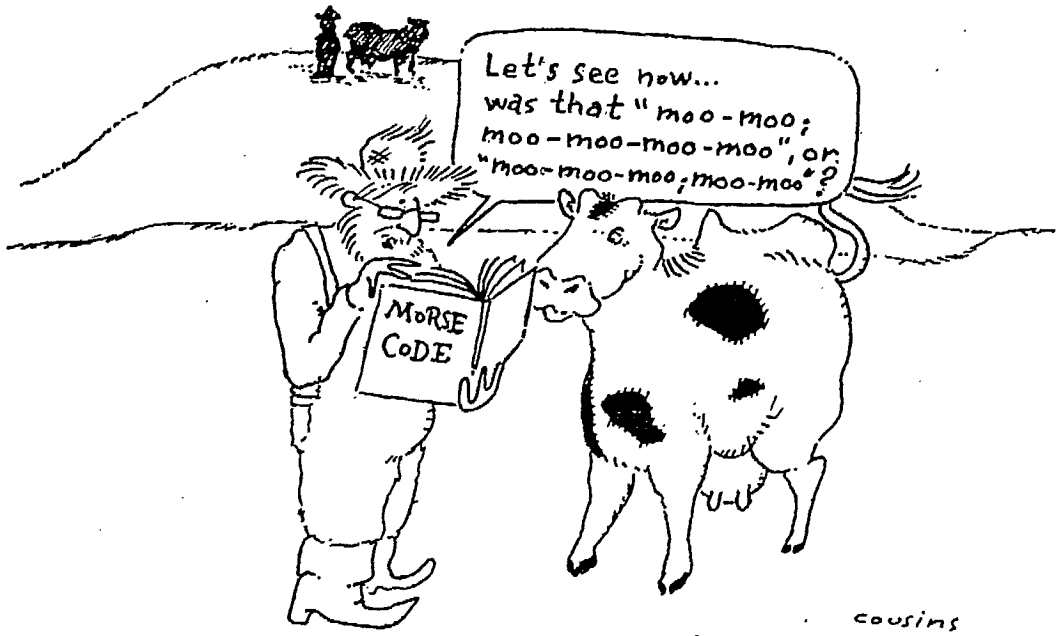
8.0 Revisiting Affordability

One option, already discussed above, to maintain affordable basic and essential service would be to adopt a policy approach featuring a regulated incremental roll-out of levels of utility service. Some providers have indicated that the cost of service or even its availability in the changing environment will very much depend upon the location and market size of the areas in question. In a competitive environment a mix of market decision making and regulation will likely determine pricing in the short term. However, to ensure that service continues to be available, is affordable or is introduced or improved where these objectives have yet to be met, will require some mix of policy/regulation and contribution mechanisms.

8.1 Funding Options

One option is required contributions from service providers to those actually providing the local service. These contributions could be from both carriers and content providers. Part of the required funds for these contributions could be accrued from the revenues arising from new information services offered by the carriers which use the shared local access facilities. Other options could include some form of a national contribution fund or a reallocation of expenditures by others (e.g., governments and public institutions) to help offset the cost of making affordable basic service available. These approaches, among others, including partnerships with carriers, would create flexible alternatives to ensure existing basic and essential service continues to be available and affordable, and could serve as means to ensure universal geographic availability of new utility and content services. Certain content components, e.g., programming, will need to continue to be required services with pricing determined by policy. Policy will also be necessary to make sure that these practises are non-discriminatory for competitors.



RURAL COMMUNICATIONS: C.2050 A.D.

8.1.1 Market Views on Policy and Regulation

A number of carriers tend to take the view that the resolution of questions concerning affordable basic and essential service, as well as questions pertaining to utility development, levels of service and approaches to the development, marketing and provision of new content is a fundamental policy role. While other competitors view policy and regulation as potential problems or barriers to competition, there is also a recognition that such interventions may very well be a fact of life and a cost of doing business. As such, companies are generally prepared to pursue either unregulated or managed approaches in any of these areas as long as there is no discrimination between competitors.

8.2.1 Consumer View on Policy and Regulation

Many of the submissions made by public interest groups to the IHAC and the CRTC convergence hearings as well as information from interviews with representatives from some of these organizations indicated a preference for oversight and regulatory controls, featuring service and contribution requirements and, pricing controls, for basic level utility access and a basic package of content services. Satisfying these concerns can best be met by the symmetrical application of a defined basic and essential communication package to cable, telephony and wireless (including satellite) networks, where this is applicable . For example, if a competitor

were only competing in cable service, they should not be required to meet telephony requirements. There was also strong support for elements of this package to be provided at affordable flat rates. It is important to emphasize that a flat rate is not necessarily affordable. Therefore, pricing limits and attention to the costs of components in the basket of basic services will be an ongoing regulatory role.

8.1.3 Unbundling as a Strategy

There is consumer concern that the addition of new services or utility capabilities to the basic and essential package could make it less affordable. Some carriers and public interests support the idea that new content services should be offered on an unbundled basis at prices that cover their costs before being offered as basic. A contribution towards access costs could be included in the price of these new commodities. As costs fall and as the new enhanced network becomes ubiquitous these could eventually become universally affordable and perhaps qualify for inclusion in basic and essential service.

It is possible that the existing basic and essential package for cable and telephony could be unbundled and priced as separate commodities. This may reduce costs for users and could free up existing capacity. This would permit more competition by service/content providers. However, this approach would erode the existing high quality of service Canadians' have already paid for over time and, depending upon how unbundled services are priced, could mean that if consumers were to recreate the existing package, they may incur higher per unit costs and, thereby, higher aggregate expenditure. Continuing the practise of a bundled basic service package at affordable rates and unbundled higher level utility and competitive content services would appear to be a better approach to balance the needs of both subscribers and commercial competitors.

8.1.4 Principles

In general, there are four principles which, if followed, would likely lessen, if not eliminate, current and future pressure on local rates and basic and essential services. These are:

1. Least Cost Provision of Service.

> *Construction of redundant facilities should be carefully reviewed and avoided where possible if they are funded by ratepayers, or where potentially impacting on basic rates in the event of business failure. Sharing of wireline facilities by cable and telephony carriers, where technically possible, should be encouraged.*
>
> *Where various upgrade options exist (e.g., narrow and broadband), carriers should be required to implement the least expensive option required to deliver the desired service, where ratepayer monies are involved. Research and Development into least cost technologies should be a priority.*

2. Ensure that users of the network pay for their share of use, in proportion to the nature of demands that they place on the network.

The price difference between different types of use, eg., voice call and interactive video call, should reflect to some extent the difference in demand that each places on the system. There should be no for-profit free riders on the system. In particular, those whose needs and demands do not require expensive upgrading of the network should not be forced to pay for such upgrades through rates for basic service.

3. Minimize the burden of joint and common costs.

A large proportion of the costs building an interactive-video-grade network will be spent on facilities which can be used for all telecommunications services, from voice to video. To the extent that prices are based on underlying costs, this presents a challenge to regulators: how should these joint and common costs be recovered? If affordability of basic service is to be achieved, the allocation of these costs to basic service should be minimized.

4. Ensure that the concept of basic and essential service does not raise the price of basic service.

Some mechanism, e.g., Advisory Panel, needs to be put in place to ensure that, as society's concept of basic service evolves, so does the policy/regulatory definition of basic and essential service, such that it is made available to all at affordable prices. Access to new, enhanced networks and services should be available to all Canadians as options, but not at the risk of jeopardizing universal affordability of basic service.

The availability of affordable basic telecommunication services to all Canadians will continue to be a priority. Pricing of basic utility service and stipulation of the content functions within this package will need to continue to be handled separately from that of enhanced utility and content services. Affordable flat rate pricing will be an essential requirement to achieve the goals of Broadcasting and Telecommunication Acts, and especially that of universality.

SECTION NINE:

CONCLUSION

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CONCLUSION

9.0 Conclusion

The purpose of this study was to examine the kinds of service and capabilities that might be available under different scenarios for the development of the Information Highway and to make recommendations on basic and essential service in an information age. The study considers cost implications, market receptiveness, the ability of consumers to make use of such services, and the likely importance of such services to the ordinary Canadian, particularly the vulnerable consumer.

The study found that in the absence of strong policy and a clear and flexible regulatory approach a large number of Canadians will be excluded from access to, and the benefits of, the Information Highway. The most important service for Canadians with existing networks and the Information Highway is *a mandatory and affordable basic and essential service package*. This minimum service requirement will be necessary for all Canadians to access and use all other networks and services in future.

While all Canadians will face greater affordability and access pressures as Canada moves to a market-based approach, these challenges will be greatest for low income Canadians and those living in rural and remote locations. Many subscribers in these locations have yet to receive existing levels of affordable, quality and reliable basic and essential service that is taken for granted in the rest of Canada. In the absence of a clear policy framework, with a mix of flexible service and funding approaches for infrastructure and content development and access, rural and remote Canadians as well as many living in urban areas will be left behind.

There is not as yet a high public demand for the Information Highway or many of its services. Those that recognize the economic and social opportunities that the Information Highway could bring advocate a managed, evolutionary approach for development which is guided by a balance between the needs of users and providers and not pushed by a narrow economic market interest alone.

The success of the Information Highway will depend upon its affordability and the

usefulness of the content for consumers. The cornerstone of this success will be a defined bundled, basic and essential communication package available throughout Canada. Universal basic service will ensure that all Canadians have affordable access to a minimum level of service required for full participation in society. This universality of service will, at the same time, benefit utility and content providers by ensuring sufficient market scale to realize a healthy return on investment.

An *Advisory Panel*, or some similar mechanism, is required to deal with policy matters relating to basic and essential service, access and content on an ongoing basis. Made up of a balanced representation of public interests and industry, this Advisory Panel should undertake public consultations and study's as a basis for policy recommendations to the Minister's of Industry and Heritage on issues relating to the development of the Information Highway. The Panel should be established in the fall of 1995. Unless a CRTC hearing is convened on this matter, the Panel's first order of business should be to define a basic and essential service package and the means of implementing this in all regions of Canada.

The development of the Information Highway for all areas of Canada should be based on an evolutionary approach. This evolutionary model should be needs driven and feature different levels of service (e.g., basic utility, narrow and broadband) and universal access defined geographically (community, local institution) and individually (residence)for different networks and capabilities. This would be a more cost effective and efficient means of allocating resources and would balance subscribers' service and affordability needs with providers profit needs.

Service and affordability should be assessed by adding the criteria of "per cent of income spent on a service" to the traditional measure of service penetration levels. Measuring affordability this way will provide a clearer understanding of the challenges faced by many people just to have basic service. Such an approach will also assist the government in effective policy development to meet the diverse needs of Canadians.

APPENDIX ONE:

RURAL, REMOTE AND SMALL MARKETS

A CASE STUDY

10.0 Appendix One: Rural, Remote and Smaller Markets: Case Study

10.1 Rural, Remote and Smaller Markets

The main part of this report studies access and basic and essential service for the Information Highway at a general level. This appendix provides more detailed analysis of the needs of Canadians living in rural and remote locations. This analysis permits a better understanding of the essential quality of our communication infrastructure, helps better understand the challenges for achieving affordable and quality service and offers lessons which can be applied to all of Canada.

The value of telecommunications is greater for those communities with limited or more expensive alternatives. Rural and remote communities stand to gain the most from improved telecommunications, precisely because of their geographic isolation. Effective rural development policies must emphasize the important role that telecommunications can play in opening up new business, learning, employment, education, social and other opportunities to rural communities.

While a high degree of universality has been achieved in urban areas, many rural regions of Canada still do not have basic or reliable utility service. Historically, rural, remote and less lucrative market locations have always been the last to receive service or to be upgraded. This is because market forces tend to concentrate in high density, high-profit areas, and to ignore costly rural areas. This is particularly the case where prices are averaged as between rural and urban locations, such that rural prices do not cover the cost of provision. As a result, competition creates pressure to de-average prices. Moreover, market forces do not take into account public or social benefits of service provision - benefits which clearly exist in rural areas, but which are often difficult to quantify and which are not necessarily reflected in the service provider's bottom line.

The need to maintain a regulated package of basic and essential service and to apply this symmetrically to all existing and new competitors (e.g., cable, telephony, wireless) has been reinforced by a survey conducted by the Public Interest Advocacy Centre of 2200 rural telephone subscribers.[17] This survey determined the interests and needs of rural telecommunications users. The survey found that the existing basic and essential service package is a fundamental requirement to meet users' needs. An equally important finding was that even at the *current level of regulated service* a significant number of affordability and service problems exist. This suggests that any move to lessen these minimum standards could have real negative impacts on a large number of subscribers.

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[17] For more information on this survey see Telecommunications Toward 2000: Are Rural Canadians Getting Their Fair Share, PIAC, 1993.

10.2 Survey Findings [18]

About 25 per cent (6 million) Canadians live in rural areas. Of this number only 3.3 % are involved in agriculture and 5.5 % in forestry, fishing and mining. The remainder of the rural population are engaged in a wide variety of occupations, many of which rely on high quality telecommunication links to customers and suppliers.

The survey found that rural Canadians are very dependent upon basic service. Over 64 % considered themselves "extremely" or "very dependent" upon this service, whereas only 2.3 % were "not dependent at all". Dependency varied by community where smaller communities (less than 2000) had higher levels of reliance on service. Respondents rated the reasons for the importance of basic service as follows:

Personal Emergencies	85 %
Personal Contacts	69
Isolation	53
Business Use	38
Personal Shopping	9.5

These results show that access to the network is necessary to meet basic needs and affordability to basic and essential service should continue as a policy goal.

Most areas of Canada are moving to single line service. This is still cost prohibitive for some and will require subsidy initiatives to be affordable. Single line, with TouchTone, is increasingly necessary to use many of the new services. Rural Canadians are generally satisfied with overall quality of service, though smaller communities experience more problems. Problems identified included too much noise on the line interfering with computer modem, difficulty making connections in bad weather, network congestion, and inadequate volume when more than one phone is on a line. Many rural subscribers found that the existing local calling area problematic (4.8 %). This dissatisfaction stems from the need to incur long distance calls to reach the nearest urban centre or even the next exchange. This was seen by these respondents as unfair given that the important services, such as schools, hospitals and government, are located in these other exchanges.

A large proportion of respondents (23 %) reported dissatisfaction with the price of local service. With a smaller rate base or some customers living outside a rural rate base, the cost of basic service and line service is higher in order for companies to recoup some of their costs. The current trend towards rebalancing will add more cost to this basic service. A significant

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[18] This national sample is statistically significant at a 95 % confidence level with a margin of error of +/- 2 %, 19 times out of 20.

proportion of respondents (22 %) were dissatisfied with the cost of long haul long distance calling. Even more (38 %) were dissatisfied with the cost of short haul long distance calling. While long distance rates have been falling, this has been greater for long haul calls.

10.2.1 Rural Service Challenges

Consumers in less lucrative markets (e.g. towns), rural and remote areas already experience pricing barriers and limited choice of utility providers. These barriers include the cost of network construction and upgrades, user access fees to the facilities, network quality and time charges. For example, in 1994, of 30 Ontario independent local exchange carriers, in only 8 were there more than 75% of subscribers on a single line. One exchange had 33% of subscribers on a single line. Six had a little over half of their subscribers on single line service. Of the 30 exchanges, 7 had no cable television access and only in 4 exchanges more than half of telephone subscribers also had cable access.[19] Users in these markets need access to a quality, affordable utility(s) and to the same services which are available in the core urban markets.

The move to competition coupled with the expected price increases in basic costs (e.g. rate rebalancing) means that many of these subscribers or potential subscribers may not be able to afford existing service let alone new services. Affordability in these markets as well as for low income and, perhaps all, Canadians in urban markets will only be attained through a combination of policy initiatives as competition increases regardless of the basic and essential scenario that is adopted. These policy initiatives include: cross-subsidy; direct subsidies; a Universal Service Fund; leveraged upgrades and reduced pricing through government procurement; service requirements; partnering and utility sharing, and special tariffs for public and other essential services on the networks. These issues are discussed in further detail in the following case study on Northern access and basic service.[20]

10.3 Case Study: Canada's North

Perhaps there is no better or clearer example of the importance of our communication infrastructure and content services in the economic and social activities of Canadians and the role of public policy in developing these, than our northern communication system (Yukon,

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19 Ontario Telephone Association submission to "Access and the Information Highway", Notice #: IHAC-002-95, Appendices 1 and 2.

20 For more information on the needs of remote users see the Inuit Broadcasting Corporation presentation to the Access and Social Impacts Committee, IHAC, July 11, 1994; Inuit Tapirisat of Canada and James Bay Cree Communication Society CRTC Submissions re: Order-in-Council P.C. 1994-1689.

Northwest Territories, northern Quebec and Labrador). The North provides a benchmark of what "basic service" is today and will need to be with the development of the Information Highway.

The long standing principles of concern for policy makers regarding communications have included: universal access at affordable prices; the use of telecommunication technology to support and foster balanced regional economic development; the equal distribution of the benefits of technological progress to all Canadians; and the need to ensure the provision of essential telecommunication services. In the more populated and better resourced southern and urban areas of Canada these goals have largely been met with existing services. In the far North, they remain a challenge for many communities.

The important lessons to be learned from northern communication system can inform the policy framework, and the development, of the Information Highway for all regions of Canada, but most particularly for northern locations given their special needs and the much more central role communications has played and will increasingly do so in everyday life. The combination of a small and dispersed population, high costs of transportation, and the strong role played by government in people's lives makes northerners uniquely dependent on telecommunication services.

Communication service in the North covers an area of 4.3 million square kilometres, from the Yukon/Alaska border to the Atlantic coast of Labrador in the east. There are 96 communities and approximately 100,000 people living in this area, over half of whom are of aboriginal ancestry. There are fifteen aboriginal language groups within this area.[21] Ninety five percent of the population of Arctic Quebec are aboriginal people, primarily Inuit. Three thousand indigenous people make up approximately 28 % of the population of Labrador.

10.4 The Struggle for Service

Ubiquitous and reliable service has always been a struggle in the North. This region largely relies on satellite service for access to, and distribution of, information and communication services and will continue to do so in the future. Wireless service, often provided by a mix of public, private and local resources - sometimes in partnership, has been the traditional means of overcoming challenges in the North.

As recently as 1922, the Northwest and Yukon Territories had no modern means of communication. As one report noted, there was no means "of communication "outside" except

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21 Aboriginal language groups include Inuktitut, Inuvialuktun, Slavey, Chipewyan, Dogrib, North and South Slavey, Cree, Gwich'in, Han, Kaska, Tagish, Northern and Southern Tuchone and Tlingit.

limited mail service by boat in summer and dog team in winter".[22] Then, as now, the vastness of the region and the small market base meant that narrow economic criteria alone would be an insufficient determinant for service given the broader economic, social, cultural and political objectives of the people living in the region and Canadian society at large.

The first modern communication system provided in the North was the Northwest Territories and Yukon Radio System (west of Hudson's Bay and in the Yukon). This system of two-way radio stations was installed by the Defence Department with funding from the Interior Department. Using surplus World War I radio equipment, the first stations started transmitting in 1923. Until 1960, this network was used by towns, companies (banks, retailers, mines, forestry firms, etc.), government and individuals for business transactions, weather information, administrative purposes, emergencies and personal affairs. Radio telephone service and telephone booths were available for general public usage. A number of private stations (operated by communities and businesses) were linked to this network. Alternative commercial services, including wireline, were introduced in the 1950's, though these mainly connected larger centres (e.g., Whitehorse) to the South. Early CBC radio signals were broadcast to the North using this radio network, starting in 1949. By 1958, the CBC assumed control of broadcasting stations in the Northwest Territories and Yukon, the Department of Transport took over weather and air traffic responsibilities and private and other public services provided other telecommunication services.

While meeting minimum communication requirements in some communities, these systems still did not extend service to smaller and remote locations or provide the quality and scope of services, including local cultural and language content, to meet the full range of needs of citizens or business.

For years, northern and aboriginal interests have struggled to gain access to basic levels of broadcasting and telecommunication services, broadcasting distribution and funding. Southern broadcast, and in particular television, signals were introduced to the far North with little regard for indigenous cultures and without any regard for regional programming. However, aboriginal groups wanted service where the production and distribution of programs and services met the needs and interests as well as reflected the aspirations and goals of its residents. Similarly with basic telecommunication service, only the most populous centres received service and the minimal level, low quality and high cost of this service meant that economic and social development, participation and integration - the whole purpose of having communication - was limited.

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22 A History of the Northwest Territories and Yukon Radio System, Edmonton: NWT and Y Radio System, June, 1960.

10.4.1 Role of Government

> *The social, cultural, linguistic, educational, economic and self government aspirations of aboriginal peoples are inextricably linked to the development of information and communication services in our northern homelands.*
>
> *Inuit Broadcasting Corporation*

A mix of initiatives by the federal government and community representatives and organizations over the past two decades have greatly improved some services. For example, in 1977, the Department of Communications introduced the first major subsidy program, the Northern Communication Assistance Program, to extend telecommunication service to the smaller, more remote communities. The federal government Accelerated Coverage Plan was also implemented to provide CBC service to all communities. However, only communities with a population greater than 500 actually benefitted from this initiative. In response, the Yukon and Northwest Territories governments paid to extend CBC service to smaller communities. In 1982, the Inuit Broadcasting Corporation was formed to provide programming using CBC distribution facilities with the goal of preserving, promoting and enhancing the Inuit language and culture. With production facilities in five northern communities, IBC broadcasts five to seven hours of programming to more than 40 communities in the NWT, Labrador and northern Quebec. Partial support for this service is from the federally administered Northern Native Broadcast Access Program. IBC raises the balance of required funding from other sources.

In 1991, Television Northern Canada (TVNC) was licensed to provide an adequate distribution system for the programming produced by local and regional aboriginal broadcasters, and educational services. Aboriginal producers are the primary source of native-language information and cultural programming in the North. TVNC, Canada's first pan-northern satellite network, features 100 hours per week of local, regional, national and international programming for the people of the North. TVNC broadcasts to 96 communities.[23]

10.5 Needs, Opportunities and Challenges

The opportunities to be gained by northerners are not unlike those of the South. However, with the exceptional barriers of cost, distance, transportation, and existing low service quality, many existing and new services will be of greater value to these residents.

The communication infrastructure is essential for supporting the increasingly decentralizing Territorial and Nunavut governments. The organization of geographically distributed departments will rely increasingly on a quality and accessible infrastructure. Distance,

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[23] Television Northern Canada members include the Inuit Broadcasting Corporation; Inuvialuit Communications Society; Northern Native Broadcasting, Yukon; OkalaKatiget Society; Taqramiut Nipingat Inc.; Native Communications Society of the Western NWT; Government of the Northwest Territories; Yukon College; and the National Aboriginal Communications Society.

weather and transportation costs will no longer be barriers. Improved communications will also provide the means to maintain and extend cultural links at the regional and local levels. New telecommunication technologies also offer hope for viable economic solutions for the improved delivery of education, health and other programs and services to smaller communities. Private business will rely increasingly on these networks to provide service in the North, compete directly with southern based interests and to market products and services in international markets.

10.5.1 Current Service

The North is currently served by a number of carriers and content providers, e.g., CBC, Telesat, Cancom, Northwestel Inc., IBC, TVNC. In addition to these regional and national services there are also a number of local private and cooperative services. For example, Arctic Cooperatives Ltd. provides cable service to nine Nunavut communities and will have wired more by the end of 1995. In 1993, only 22 communities had cable television.

The North is currently a monopoly for telecommunication services. Most broadcasting services are provided by satellite (receiver/transmitters in local communities) and telephony based service by a mix of satellite, wireless and wire-line. The most efficient and economical means for developing and extending a quality basic system and upgrading for Information Highway services will be a cooperative approach or alliances between the existing carriers and providers. There are a number of problems with the existing system (e.g., the telephone system is largely analog and expensive) and no provider is in a position to offer a sufficient level of service to all communities in an affordable way.

An alliance featuring the interconnection and interoperability of upgraded satellite (e.g., TVNC), local telephone loop and cable networks and the use of wire-less technologies would provide both a quality level of basic service at affordable prices such as that enjoyed elsewhere in Canada, as well as being a cornerstone for the provision of different levels of Information Highway services. Northern groups will need to work together as equity partners with commercial providers in such an alliance to meet all the needs of all residents.

The primary telecommunications provider in the North is Northwestel Inc.. Northwestel's service area covers 3.9 million square kilometres and includes 100,000 inhabitants. In 1992, 38 of 85 communities served by Northwestel received telecom services using satellite.[24] Of the 96 communities in the North, six still did not have telephone service in 1994 (other than one phone located somewhere in the community).

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[24] Annual Report, Northwestel Inc., 1992.

10.5.2 Quality of Service

Northern residents are currently limited in their access, even where there is service, due to an outdated and expensive telecommunication system. Current communication infrastructure in remote communities does not effectively support anything more than voice and fax. Videoconferencing, data transfers, E-mail and other services cannot be supported on the telephone system. The underdeveloped cable system and expensive two-way satellite service (including the lack of a local loop connection) are not viable alternatives in the near term. With the telephone network expected to play an important role in the delivery of Information Highway services in Canada there exists a real need to upgrade the quality of service so subscribers are able to enjoy the minimum slate of basic services already used by other Canadians. This includes the ability to connect to advanced services and to address the issues of pricing and affordability. The cost of service in the North is the highest in Canada. This is a real barrier for residents particularly when they must connect with distant locations to access or exchange information.

Access, affordability and universal basic service are of significant importance to all individuals, businesses and public institutions. How these "make or break" issues are dealt with now will affect personal services, business growth, health care, education, government, regional development and individual development and participation for years to come.

10.6 Cost of Service

In the North, toll service is an essential part of local service because, like the south, subscribers often need to call government offices, health or educational institutions, or businesses to conduct their daily affairs. These are often located in an adjacent exchange. *In the North an adjacent exchange is often located up to several hundred miles away.* Northern subscribers must pay a toll charge for the types of calls that southerners make as part of local service. These northern calls are considered "long distance" even though they may related to subscribers own unique "local community of interest" - which cover a wider areas than in the south, but functionally is not unlike geographically closer exchanges in urban, southern markets. This artificially determined distance pricing coupled with lower per capita income in the North creates affordability barriers for individuals and communities. With an increased reliance on basic and enhanced Information Highway services in future, cost barriers such as these will be a particular challenge to northern residents.

Tables One and Two compare toll rates between Northwestel Inc. exchanges in the Yukon and Northwest Territories and Bell Canada.[25] The TransCanada toll rates for Bell Canada are comparable to those of other provincially operating phone companies, e.g., MTS, SaskTel.

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[25] Both companies are owned by BCE Enterprises.

Table One: Bell Canada Toll Rates (1992)

Ontario/Quebec Toll Service	
Distance (miles)	*Cost Per Minute*
200	.38
301 +	.39
TransCanada (except NWT and Yukon)	
200	.42
681-1200	.46
1201-1675	.47
Ont/Que. To west NWT/Yukon	
200	.42
681-1200	.75
1201-1675	.84

Table Two: Northwestel Inc. Toll Rates (1992)

TransCanada (from north west area)	
Distance (miles)	*Cost Per Minute*
200	.48
681	.82
1201	.96
1600	1.11

Source: Telecom Decision CRTC 92-6, May 1, 1992, Schedule of Charges, Item 210, Northwestel Inc.; Telecom Decision CRTC 92-6, May 1, 1992, General Tariff, Item 3160, Bell Canada.

Given the distance factor between communities/exchanges in the North or outside this region, sample rates for 200 miles and further have been selected as examples of pricing differences.

Toll rates for those living in the far North are substantially higher than for other Canadians. Calls made from 200 to 700 miles away in the North (Table Two), essentially a basic or local service area for these subscribers, are 25% to 110% higher than for calls of similar distance in the South (Table One).

The TransCanada long distance rate for calls made from the north west areas of the Northwestel service area to other parts of Canada are 78% to 136% higher than the Bell Canada rates for calls between its service area and others areas of Canada, other than the North. Interestingly, a call made between a site in a Bell exchange in Ontario or Quebec and a site in the western NWT is 32% more expensive to dial from the North than if the call was dialled by someone in the southern location, even though the same lines, switches or satellite equipment were used.

Historically, northern users spend up to three times as much per year on toll service than southerners. For example, in 1981 the average toll phone cost per subscriber was between $625 and $650 per year. In Bell territory as a whole, the average was $206.[26] This gap has not lessened. As is shown in the following table (Table Three), the cost for overall communication service even in larger market bases such as Whitehorse (Yukon) and Yellowknife (NWT) was two to three times more expensive than the household average for Canada's ten provinces.

Table Three: Family Communication Expenditure (1992)

Average Household Expenditure	10 Provinces	Whitehorse (Yukon)	Yellowknife (NWT)
Communications	678.80	1415.99	1710.10
Telephone	634.20	1332.99	1629.85
Basic Charge	242.30	168.92	188.16
Long Distance	393.70	1151.57	1425.80
Cable	296.00	369.86	622.47

Source: Family Expenditure in Canada. Ottawa: Statistics Canada, 1992.

While basic service is less in these two northern communities, toll costs were three to almost four

[26] Weihs, F. "Northern Consumers and Telecommunications Policy", for The Public Interest Advocacy Centre, March, 1989.

times more expensive. Similarly cable television service in these two communities was 24% to 110% higher than the average for the rest of Canada.

The higher incidence in the number of toll calls per access line and per capita in the North as compared to the rest of Canada demonstrates the increased reliance on telephone by northern residents.[27] The number of toll calls per access line in the North was 316.7 as compared to 206.5 for the average in the rest of Canada. Toll calls per capita in the North were 194.4 and 117 in the South. The estimated revenues in the North for each residential line was $212.94 for basic service and $2593.05 for toll revenues per line. The long distance toll average for the ten provinces was $393.70 in 1992.

The increased use of basic and enhanced telecommunications services in future, e.g., distance health, education, business, government administration and community interaction, means that cost barriers such as those described above will be a particular challenge for northern residents. The cost of network upgrades and new services is increasingly in the technology and less in the distance component of service. This much touted "geographic neutrality" of our evolving system suggests the need for a way of rethinking service to ensure quality and affordable basic service for northern residents such that overall service is comparable to their southern counterparts. This is easily achievable in the North with the extensive use of satellite technology which is not distance sensitive!

The distinction between calls that are billed as local calls and those which are billed as toll does not necessarily correspond in reality to any difference in the equipment involved or the routing of the call. The traditional billing approach is largely arbitrary and continues as a matter of convention or practise. Similar opportunities to rethink service delivery arising from network upgrades, new switching and other technological efficiencies will also likely exist in other parts of Canada. This means there is a need for new conceptions and practises regarding what constitutes billing practises, market areas, and definitions of "local calling areas" and "communities of interest" as well as new services and networks which should be reachable from basic, local service.

10.7 Basic and Essential Service

Many communities and residents in the far North are still waiting for basic and essential service comparable to the level of service in the South. Perhaps one of the lessons from the

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27 Statistics from 1992 are used. Sources are Northwestel Inc.'s Annual Report, 1993 and Telephone Statistics, Statistics Canada, 1992. Some variation may occur in total number of lines used for these estimates or revenues from other sources due to ongoing construction/installation and higher year end toll calling patterns which may not have been included at the time these figures were filed.

North, for both northerners and the rest of Canada, as suggested in Sec. 10.7.1, is that without policy attention to the essential nature of communication service as a public utility, in addition to being a means of commercial enterprise for a handful of companies, Canada not only risks failing to provide required service in the North, but may very well see the erosion of service in other areas of Canada. How would subscribers in southern markets respond to unacceptable low and expensive levels of service which may arise from market decision making alone comparable to the existing levels of underdeveloped service in the North today?

10.7.1 Defining Basic Service

> *People in remote communities need access to the basic human services all Canadian's enjoy, such as basic health care, education and justice.*
> *Inuit Broadcasting Corporation*

Basic service is defined by subscribers in the North by more than technology. It is described in human terms where an evolutionary strategy featuring partnerships and the use of a range of different and changing technologies as tools meet the current and long term economic and social needs of the citizens'. A basic service in the North is one "which enables individuals in remote communities to access basic human services over a distance at the same cost and quality available to the end user" in a southern urban market (sic).[28]

In substantive terms, this means that a broadly defined basic and essential communication package of services needs to be established to meet the near and long term needs of subscribers. This is an evolutionary model where different levels of service (e.g., digital single line - cable or telephony - to the home, satellite up/down links, narrowband connections to institutions, geographically universally available - local site - broadband) are provided to all communities. For example, a single community point of presence could be used for higher band services (e.g., medical, government, video-conference). Single digital lines (cable, telephony) could be used to access local higher band service sites or connect to distant locations through shared local satellite uplink facilities. Service delivery in these locations should ideally be provided by an alliance or partnership between commercial carriers, northern groups, communities, content providers, government and public institutions where all are involved as decision makers, and where possible, as equity partners.

10.7.2 Cost of Infrastructure Upgrade

The cost of infrastructure upgrade, content development, including language and cultural needs, requires partnering and financial contributions from the federal and territorial

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28 IBC submission to the Access and Social Impact Committee, IHAC, July 11, 1994.

governments, cross-subsidization from the South (e.g., Universal Service Fund) and commercial carriers and content providers. As with rural and small market areas in the South, the move to a cost-based competitive market means that without flexible and innovative financing and regulatory initiatives many residents will be left by the side of the road as service becomes unavailable or unaffordable. Even with existing cross subsidies the North has not kept pace in telecommunication service with other areas of Canada.

10.7.3 Policy Options

The North needs to have a special rate and regulatory structure with new methods and practices of investment and pricing to ensure affordable and accessible quality basic services. The notion of "community of interest" when defining a service area clearly needs to be rethought beyond the traditional and limited wireline exchange model - a vestige of thinking remaining from the last century. This is particularly so where new technologies have created geographic neutrality from a pricing perspective. There needs to be a federal government role, as a matter of policy and statutory responsibility, to continue "core funding" of northern infrastructure development and unique northern services, such as the Northern Native Broadcasting Program.

An evolutionary approach featuring different levels of service (e.g., narrow and broadband) and universal access defined geographically (community, local institutions) and individually (residence) for different network services and capabilities is a rational and efficient means of developing basic and Information Highway services to meet users' needs. This method ensures that people only pay for the services they actually use. This type of approach for achieving the objectives of universality and affordability would be useful for the development of the Information Highway in other areas of Canada. A balanced regulatory and market approach using an evolutionary strategy would mean that all Canadian's - low income, rural and remote and others - would have access to services as needs dictate rather than being pushed by narrow market imperative.

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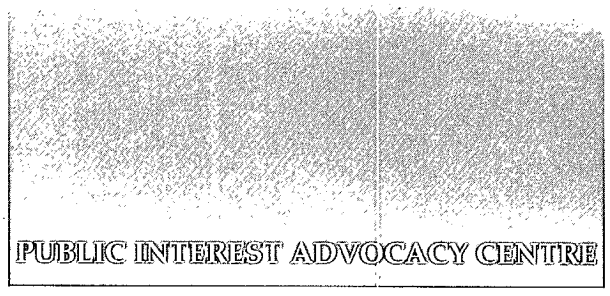

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