



Telecom Decision CRTC 2004-46

Ottawa, 14 July 2004

Trunking arrangements for the interchange of traffic and the point of interconnection between local exchange carriers

Reference: 8643-C25-01/99, 8643-C12-07/01 and Bell Canada Tariff Notice 6597

In this decision, the Commission modifies the regulatory framework for the interconnection of local exchange carriers. The Commission finds that consolidation of exchanges to form larger local interconnection regions (LIRs) would provide for more efficiency and lower the costs of interconnection. The termination of traffic that is both interchanged and terminated within the LIR will be subject to the bill and keep mechanism and, where appropriate, mutual compensation. Extended area service transport and termination, toll originating, 9-1-1 and Message Relay Service traffic will remain on separate trunks.

The Commission modifies the existing interconnection framework to permit the termination of traffic that is both interchanged and terminated within the exchange to be subject to the bill and keep mechanism and, where appropriate, mutual compensation. The Commission grandfathers all other aspects of the existing interconnection framework and associated rates. The incumbent local exchange carriers (ILECs) are directed to file, within 90 days of this decision, cost studies for interconnection rates for the newly defined LIRs.

The Commission mandates the provision of shared cost point of interconnection (POI) diversity when requested by a competitive local exchange carrier unless an ILEC can demonstrate, to the Commission's satisfaction, that the POI diversity is not required.

Introduction

1. The Commission issued *Trunking arrangements for the interchange of traffic and the point of interconnection between local exchange carriers*, Public Notice CRTC 2001-126, 19 December 2001 (Public Notice 2001-126), announcing a review of the rules for trunking and points of interconnection (POI). The Commission initiated the review with the stated objective of determining whether more efficient and effective arrangements could be found to provide for a more equitable distribution of the costs, lower the overall costs for interconnection and further the co-carrier relationship between competitive local exchange carriers (CLECs) and incumbent local exchange carriers (ILECs) initially set out by the Commission in *Local competition*, Telecom Decision CRTC 97-8, 1 May 1997 (Decision 97-8).
2. In Public Notice 2001-126, the Commission invited comments on and proposals with regard to: revising the existing rules to allow for fewer POIs for the interexchange of traffic between local exchange carriers (LECs) and alternate trunking arrangements that would reduce the number of trunk groups required for interconnection. The Commission specifically requested parties' views regarding the desirability and feasibility of combining on one trunk group all types of originating and terminating traffic that was exchanged by LECs in the area served by a POI (hereafter referred to as the local interconnection region, or LIR) and whether within the LIR

all traffic should be exchanged on a bill and keep basis¹ or some other compensation scheme. In addition, parties were asked to propose a transition mechanism to any new LIR arrangement and were invited to comment on any other issue that could improve on the current interconnection regime.

3. On 29 June 2001, Bell Canada filed an application under Tariff Notice 6597, proposing to introduce a multi-gateway point of interconnection (MGP) service for CLECs. In Public Notice 2001-126, the Commission stated that the record associated with Bell Canada Tariff Notice 6597 was made part of this proceeding.
4. AT&T Canada Corp. (now Allstream Corp.) on behalf of itself and AT&T Canada Telecom Services Company (collectively, Allstream), Call-Net Enterprises Inc., on behalf of itself and Call-Net Technology Services Inc. and Call-Net Communications Inc. (collectively, Call-Net), Aliant Telecom Inc., Bell Canada, MTS Communications Inc. (MTS) and Saskatchewan Telecommunications (collectively, the Companies), EastLink Telephone (EastLink), Futureway Communications Inc. (doing business as FCI Broadband), GT Group Telecom Services Corp. (CLEC operations now known as LondonConnect Inc. (LondonConnect)), Microcell Telecommunications Inc. (Microcell), the Ontario Telecommunications Association (OTA), TELUS Corporation (TELUS) and Vidéotron Télécom Ltée (VTL) filed submissions dated 21 February 2002.
5. On 24 May 2002, Allstream, Call-Net, FCI Broadband, LondonConnect, Mr. François D. Ménard, Microcell, the OTA, Rogers Wireless Inc. (RWI), TELUS, the Companies and VTL filed comments on the submissions.
6. On 7 June 2002, Allstream, Call-Net, the Companies, Mr. François D. Ménard, FCI Broadband, LondonConnect, Microcell, TELUS and VTL filed reply comments on the submissions.
7. By letter dated 21 October 2002, additional information was requested from various parties. On 10 January 2003, Allstream, Call-Net, Cogeco Cable Canada Inc. (Cogeco), FCI Broadband and the Companies filed supplementary comments relating to the additional information.
8. In January 2003, Allstream, Call-Net, the Companies, Microcell, TELUS and VTL filed supplementary reply comments.

Background

9. In *Review of regulatory framework*, Telecom Decision CRTC 94-19, 16 September 1994 (Decision 94-19), the Commission established a comprehensive regulatory framework for the Canadian telecommunications industry, consistent with the policy objectives of the *Telecommunications Act* (the Act) and the evolution of the telecommunications environment. The Commission expected that the new regulatory framework would promote the development of a telecommunications infrastructure in Canada that offered an increasing range of competitively provided services to all sectors of the public. The Commission concluded in

¹ In Decision 97-8, the Commission mandated the bill and keep approach for traffic that was interchanged between and terminated within the same exchange. With bill and keep, the originator carrier bills its customer for the call and keeps the corresponding revenue. The originating carrier does not compensate the terminating carrier for call termination expense.

Decision 94-19 that the principles of open access, unbundling, co-location and interoperability among networks had to be promoted to ensure that the right economic and technical conditions were in place to facilitate entry into the local wireline market. The Commission subsequently initiated a number of proceedings to establish the necessary frameworks to give effect to these conclusions.

10. In *Implementation of regulatory framework – Local number portability and related issues*, Telecom Public Notice CRTC 95-48, 10 November 1995, the Commission established the CRTC Interconnection Steering Committee (CISC). CISC was initiated to examine issues associated with number portability. CISC's mandate was subsequently broadened to assist the Commission in developing information, procedures and guidelines necessary for various aspects of the Commission's regulatory activities, including those associated with competitive issues for the provision of services in the local exchange market.
11. In Decision 97-8, the Commission established a framework for local exchange competition. In accordance with the objectives of the Act and the regulatory principles initially set out in Decision 94-19, the local competition framework was designed to balance the interests and needs of consumers, competitors and incumbent telephone companies, while maintaining universal access to affordable telecommunications services.
12. The framework for local exchange competition determined that CLECs were carriers equal in stature to the ILECs in the local exchange market and encouraged efficient, technologically neutral interconnection arrangements to the benefit of all subscribers.
13. The Commission further set out interconnection rules in Decision 97-8, including the terms and conditions governing interconnection arrangements between the networks of ILECs and those of CLECs. Noting in Decision 97-8 that these networks would vary both in architecture and traffic characteristics, the Commission provided carriers the flexibility to negotiate certain terms and conditions of the interconnection arrangements between their respective networks.
14. In Decision 97-8, the Commission addressed the issue of serving area boundaries for CLECs. The Commission noted that with respect to the ILECs' existing serving areas, the local exchange was the basic unit for the administration and provision of telephone service. The local exchange normally encompassed a city, town or village and adjacent areas. The Commission concluded that CLECs should be permitted to establish their own contiguous local serving areas for the purpose of setting rates for retail services but that the ILECs' exchanges would be designated as the LIR and maintained as the elementary unit for the purposes of interconnection. Accordingly, the Commission determined that each LEC providing service in an exchange must designate one switch or establish a POI as its gateway for purposes of interconnecting to each of the other LECs operating in the exchange.
15. In Decision 97-8, the Commission mandated the equal sharing of the costs of interconnecting trunks between LECs who were providing service within a LIR (i.e., the ILEC exchange). The Commission directed that the bill and keep approach would be used for traffic that was interchanged between and terminated within the same exchange over these interconnecting trunks. The trunks that were equally shared and subject to the bill and keep approach were known as bill and keep trunks. Additionally, the Commission concluded that in those instances

where it was demonstrated that traffic between ILECs was not balanced for a significant period of time, mutual compensation would be implemented and the rate should be capped at the ILEC rate which was mandated at essential services prices.

16. In Decision 97-8, the Commission directed ILECs to terminate a CLEC's traffic that originated in an exchange but was to be delivered to ILEC subscribers in other exchanges that have extended area service (EAS)/extended flat rate calling with the originating exchange. This service, known as EAS transport service, was to be provided over a period of five years. The Commission also directed ILECs to unbundle the functions necessary to provide a transiting service to CLECs, including CLEC-to-CLEC, CLEC-to-wireless service provider, CLEC-to-interexchange carrier (IXC) and common channel signalling no 7 (CCS7) transiting services over a similar period of five years. Transit traffic was traffic that an ILEC received from one carrier and switched to another carrier.
17. In *Transiting and points of interconnection*, Telecom Order CRTC 98-486, 19 May 1998 (Order 98-486), the Commission clarified the interconnection rules set out in Decision 97-8. In Order 98-486, the Commission addressed the rules related to POIs, trunk group requirements, transiting rules and CCS7 interconnection. In particular, the Commission stated that the bill and keep shared cost trunks were for, among other things, originating and terminating intra-exchange traffic between ILEC and CLEC subscribers. A separate trunk group to be paid for by the CLEC was to be used for transit traffic and EAS transport service. Two separate trunk groups were also required to terminate IXC to CLEC traffic and to transit CLEC to IXC traffic to an ILEC access tandem. The costs of these trunks were recovered through the Direct Connect (DC) and access tandem rates.
18. In *Geographical diversity of shared cost facilities*, Order CRTC 2000-164, 1 March 2000 (Order 2000-164), the Commission found route diversity between a CLEC and an ILEC to be in the public interest. The Commission was of the view that a balance should be established between the public interest in constructing a robust and reliable network and that of constructing efficient interconnection configurations that do not impose on carriers higher costs than necessary. The Commission, however, concluded that quality of service was highly important for competition and that it was important for networks to function with as few outages as possible. Accordingly, the Commission directed that geographically diverse facilities between an ILEC and a CLEC be provisioned on a shared cost basis when requested by the CLEC unless the ILEC could demonstrate to the Commission's satisfaction that it was not required.
19. On 8 and 9 June 2000, the Commission convened an industry workshop (the workshop) to solicit views on interconnection issues that needed to be addressed in order to facilitate local competition.
20. On 27 October 2000, Commission staff established a new CISC Network of Networks ad hoc working group (NNAWG) to investigate alternatives to: the exchange and transiting of traffic between ILECs, CLECs and IXCs; establishing POIs for the interchange of local traffic; and the interconnection for the exchange of CCS7 signalling.

21. On 7 December 2000, Commission staff issued a report summarizing the status of the various issues raised during the workshop.
22. In *Local competition: Sunset clause for near-essential facilities*, Order CRTC 2001-184, 1 March 2001 (Order 2001-184), the Commission extended the sunset period for near-essential facilities, without specifying a termination date, until such time as the market for such facilities is sufficiently competitive.
23. On 30 April 2001, the NNAWG issued a report summarizing the results of its activities and consultations to that point, concluding that it was unable to arrive at any consensus on the specific interconnection issues it was mandated to address.
24. As a result of the industry being unable to reach a consensus, the Commission issued Public Notice 2001-126.
25. The record of this proceeding raised the following issues:
 - review of the LIRs;
 - trunking efficiencies and traffic consolidation;
 - POI diversity; and
 - other issues including, separation of Internet service provider (ISP) traffic, indirect interconnection, Bell Canada's MGP service, 9-1-1 route diverse connections and CCS7 A-link interconnection.

Review of LIRs

26. The Commission has grouped the parties' submissions on LIRs into three categories: interconnection at the call termination bottleneck (CTB); status quo; and expansion of LIRs. Interconnection at the CTB requires that the LIR be defined based on where the last technically feasible interconnection point in the network occurs. The status quo represents the existing interconnections rules. The last category, expansion of LIRs, captures all proposals that argued for a larger geographic LIR resulting in fewer POIs than required to date.

Position of parties

Interconnection at the CTB

27. TELUS proposed that interconnection be required at the CTB. Specifically, TELUS proposed that each carrier be required to deliver its traffic originating on its network, or make arrangements for its delivery, to the CTB of the customer for whom the traffic was destined. With the CTB typically being located at the end-office switch serving the customer for whom the traffic was destined, the LIR would be defined as the area served by each of the ILEC's end-office switches.

28. TELUS submitted that interconnection at the CTB would allow market forces to: determine interconnection arrangements beyond the established arrangements; reduce costs and enhance efficiency by providing carriers with the flexibility to develop custom-made interconnection arrangements; promote efficiency by enabling the CLECs to decrease their reliance on the ILECs' networks; clarify the relationship between carriers; and strengthen the co-carrier relationship. TELUS further submitted that traffic termination at the CTB would enhance network reliability by reducing the risk that the failure of a single network element could disable the entire network.
29. All of the CLECs opposed TELUS's proposal. Some argued that it would be a retrograde step from that which exists today, while others argued that it would significantly increase the costs of interconnection and would exacerbate the competitive inequities faced by new entrants. It was further noted that the proposal was based on the existing legacy network architecture of the ILECs and that the ILECs themselves have been decommissioning end-offices which, based on TELUS's proposal, would leave CLECs with stranded investment.
30. The CLECs were generally of the view that a LIR based on TELUS's proposed CTB only benefited the ILECs and would severely damage the emergence of facilities-based competition in Canada. They argued that TELUS's proposal failed to meet the stated goals set out by the Commission for this proceeding, and would impose an inordinate burden on the CLECs without providing any of the efficiency and equity benefits that were being sought by the Commission.
31. Call-Net submitted that in some theoretically perfect world, the interconnection rules proposed by TELUS would be appropriate. Call-Net submitted however that a new competitor wishing to provide ubiquitous coverage would have the responsibility to connect to the 960 wire centres in TELUS territory and to the 2,338 wire centres in the Companies territory. Call-Net stated that the ILECs would likely only have to connect to a few dozen locations to meet their interconnection requirements given that CLECs deploy switches in fewer locations to cover a broader base of customers. Call-Net argued that this enormously asymmetric burden dramatically underscores the impracticality of the TELUS proposal.

Status quo

32. The Companies supported maintaining the existing exchange-based interconnection regime. They considered that the current interconnection arrangement on an exchange basis was an efficient interconnection model and there was no reason to depart from the status quo. They further considered that the objectives and framework for local competition established by the Commission in Decision 97-8 remained fundamentally correct and should continue to apply to LIRs. The Companies submitted that if the CLECs were to construct a local network today, the resulting network architecture would be substantially the same as their existing network architecture.
33. The Companies noted that existing CLECs had already established extensive transport facilities to, and between, the ILECs' wire centres in all exchanges in which they provide service. The Companies noted that the CLECs had requested and the Commission allows CLECs to use their co-location space in an ILEC wire centre for the purpose of establishing a POI. Noting that a number of CLEC co-locations in ILEC central offices already exist, the Companies submitted that it would be most efficient for the CLECs to designate these points as POIs.

34. VTL supported maintaining the ILEC exchange for purposes of establishing POIs. VTL argued that reducing the number of POIs would increase CLEC dependence on the ILECs' networks and would favour CLECs that have deployed the least network. VTL indicated that it had made substantial investment in its network on the basis of the interconnection rules set out by the Commission in Decision 97-8 and submitted that any changes to the existing network architecture would make it difficult for it to recoup those costs. VTL argued that a reduction in POIs would be prejudicial to it and other CLECs who have already made substantial investments to implement a network that conforms to the existing architecture.
35. LondonConnect submitted that if the interconnection regime failed to promote facilities-based competition or constrained the network architecture of new CLECs to mimic the legacy network architecture of the ILECs, the quality, functionality and capacity of entrants' services would be limited by the corresponding characteristics of the ILEC's network.
36. LondonConnect stated that the current ILEC local network architecture was developed as a function of older legacy technology which required numerous exchanges, some of which served vast areas, while others served small areas, normally with a single switch in each wire centre. Modern technology, allows a smaller number of host switches to provide service to numerous exchanges or wire centres by use of remotes.
37. LondonConnect noted that data provided by the Companies and TELUS indicated that the number of ILEC host switches have decreased while the number of exchanges served by a host switch have increased. LondonConnect submitted that this evolution supported moving away from an LIR defined by ILEC legacy network architecture.
38. Call-Net stated that although one POI per exchange was generally reasonable in large urban areas, in smaller centres it was detrimental to competition because it was too expensive. Call-Net submitted that establishing a POI in each ILEC exchange, regardless of subscriber density and traffic levels results in a less efficient network architecture because of the large number of POIs required and the small trunk groups that result.
39. Microcell stated that the choice of the ILEC exchange as the basis for the LIR had some advantages because the network architecture was a feature common to all ILECs. Microcell stated that there were also disadvantages with the existing interconnection rules because it forced CLECs to build more POIs than the traffic levels would support and created distortions due to the fact that exchanges varied so much in size and density.
40. Cogeco argued that the current interconnection regime was unnecessarily tied to the ILEC network architecture and technology and that it was neither competitively nor technologically neutral. Cogeco further argued that the status quo imposed unjustifiably high costs not only on CLECs but on the industry as a whole.

Consolidating ILEC exchanges

41. Several parties proposed various criteria that would lead to a consolidation of ILEC exchanges for purposes of defining a LIR.

42. Allstream recommended that exchanges should be consolidated for purposes of defining a LIR on the basis of the ILECs local calling areas (LCA). Allstream's proposed LIR definition would encompass all exchanges in which traffic from the originating exchange can be terminated without incurring long distance charges, including exchanges, which have EAS with the originating exchange.
43. Allstream submitted that LIRs defined on the basis of the existing ILEC LCA, as opposed to the ILEC exchanges, would promote technical and competitive neutrality, maximum efficiency, and commercial compatibility since both the ILECs and the public have played an important role in determining the areas in which local calling occurs. Allstream stated that ILECs are increasingly relying on a network architecture where many wire centres and exchanges are served from one host switch, similar to the networks employed by CLECs. Allstream submitted that in these circumstances there was no difference between the transport services that ILECs provide to CLECs and vice versa. Allstream stated that the LCAs, and thus LIRs, should continue to evolve over time to respond to the changes in community calling patterns, market and technological developments.
44. Allstream noted that redefining the LIR beyond the ILEC local exchanges would result in cost changes for CLECs and ILECs, but submitted that these changes would be symmetrical since each LEC would be offering the other a similar EAS terminating service. Allstream estimated that the decreased need for EAS transport and local transiting would result in \$5.8M in savings per year at current traffic levels, and \$14.4M per year when 5% of the market share is held by the CLECs.
45. Cogeco supported the LCA concept proposed by Allstream. Cogeco submitted that true co-carrier interconnection did not require CLECs to interconnect as if they are ILECs and that differences in their respective use of the technology, network design and size should be recognized.
46. Call-Net and Microcell supported expanding the LIR by grouping a number of exchanges. Call-Net considered that using a larger LIR would increase the efficiency of the network architecture and lower the costs for all parties regardless of technology used. Microcell argued that mandating one POI per LCA would strengthen the CLECs bargaining power in cases where other mutually satisfactory local interconnection arrangements between LECs might be reached. Microcell further argued that using the LCA approach would allow CLECs to achieve trunking efficiencies and lower rollout costs, which would facilitate the rollout of competitive networks beyond the main urban areas.
47. FCI Broadband proposed in major metropolitan areas such as Toronto, Ottawa and Hamilton, that the Commission designate a core exchange in which CLECs must establish a POI with the ILEC. This core exchange² would serve as the location in which traffic from a larger number of exchanges could then be exchanged between the ILEC and the CLEC and between CLECs. FCI Broadband submitted that the ILECs' facilities required to implement the proposed interconnection arrangement were already in place, and that the ILECs would incur little additional cost to accommodate the additional traffic received from CLECs.

² Using the Toronto exchange as an example, the proposed new LIR would consist of the core exchange (Toronto) plus 22 exchanges (out of a total of 36 that currently have EAS with Toronto).

48. LondonConnect proposed that the LIR be established on the basis of an equitable geographic area defined as the smaller of the provincial boundary or the smallest serving area of either interconnecting LEC. LondonConnect submitted that CLECs should not have to deploy their POIs based on legacy technology and supported grouping smaller exchanges where numbers warrant, allowing interconnection at network gateways. LondonConnect noted that Mississauga, Ontario has five separate exchanges and would be a candidate for this type of grouping, given that Toronto, which is four times the size of Mississauga, is served by a single exchange.
49. The Companies argued that the grouping of exchanges based on the LCA or some other similar proposal was based on an erroneous view that a larger LIR would be more efficient, more accurately reflect future network architecture and would not create additional costs to ILECs. The Companies provided estimates of additional costs of implementing the LCA proposal which ranged from tens of millions of dollars for a company the size of Bell Canada to tens of thousands of dollars for MTS. The Companies argued that a transfer of costs from the CLECs to the ILECs would not increase efficiency.
50. TELUS opposed the mandating of one POI for a particular region, regardless of how that region was defined. TELUS argued that using a LCA was arbitrary and not founded on any economic or regulatory principles.
51. TELUS submitted that to the extent that a geographical area was to serve as the basis for the resolution of any regulatory issue (for LCAs or otherwise), the boundary of the area must be unambiguous, easily determinable, stable over time, free of gaps and overlaps, and independent of any carrier's service offerings, including those of the ILEC. TELUS argued that none of the entrants' proposals offered such a clear, discrete and usable areas, and therefore, much work would remain to be done before the Commission could move beyond the exchange as the basic unit of interconnection.
52. VTL submitted that giving any consideration to enlarging the LIR would necessitate the adoption of equitable transition measures to minimize any negative economic impact with respect to those CLECs, like VTL, that have invested substantial capital to build a network based on existing rules. VTL suggested that should the interconnection regime be changed to enlarge the LIRs it would support the metropolitan core exchange being designated as the centre, or hub, of a region whose minimum size would be the ILEC's LCA.
53. Both Allstream and Microcell stated that a change to the existing interconnection regime should not require the removal of any existing POIs which could result in stranded investment. Allstream, however, did suggest that there could be benefits to both CLECs and ILECs if some existing POIs were to be decommissioned. Microcell stated that CRTC decisions were, with limited explicit exceptions, prospective in nature such that any changes to the LIR would affect new CLECs and existing CLECs as they enter new markets. Microcell submitted that the Commission should consider making an explicit statement that existing arrangements would not be affected by this ruling. Microcell stated that this would reassure VTL and perhaps other LECs which have arrived at satisfactory bilateral arrangements through negotiations.

Commission analysis and determination

54. The Commission's intent in Decision 97-8 was to implement a technologically neutral framework that encouraged efficient interconnection arrangements for the benefit of all LECs and their subscribers. In Decision 97-8, the Commission determined that the ILEC local exchanges were the appropriate minimum boundaries to be mandated for purposes of establishing interconnection between LECs. An objective of the proceeding initiated by Public Notice 2001-126 was to determine whether a more efficient and effective interconnection arrangement could be achieved with fewer POIs which would result in larger mandated minimum LIRs.
55. Since the issuance of Decision 97-8, several significant changes have taken place with respect to the existing regulatory framework, technology, as well as the marketplace.
56. A primary reason for determining the ILEC exchange boundary as the elementary unit for the purposes of interconnection was to maintain the integrity of the toll contribution system. The Commission found that permitting a CLEC to define serving areas that encompass more than one ILEC exchange, without making provision for toll contribution for CLEC calls that cross an ILEC's exchange boundary, would result in CLEC calls avoiding contribution.
57. In *Changes to the contribution regime*, Decision CRTC 2000-745, 30 November 2000 (Decision 2000-745), a new contribution regime was established on the basis of annual telecommunications service revenues of all telecommunications service providers, as opposed to the previous regime that was based on long distance minutes. Consequently, the distinction between local minutes and long distance minutes, and the local exchange boundary as the basis to distinguish the two types of traffic, was no longer relevant for contribution purposes.
58. The Commission notes that as LECs build new networks or redesign existing networks, these networks will not necessarily be based on the existing circuit-based network architecture. Advances in technologies related to the carriage of traffic have, among other things, reduced the costs of backhauling traffic. As noted by parties, as a result of these cost reductions the ILECs have decommissioned switches and the new entrants have used substantially different network architectures which all require fewer switches to cover a broader geographic area than that of the ILEC legacy networks. The Commission also notes that some of the new entrants entering the local market are not dependent on the ILECs unbundled loops and co-location for purposes of offering local service to customers.
59. The Commission considers that in reviewing the interconnection rules, it must not only continue to balance the interests of ILECs and established CLECs but consider if more efficient and effective arrangements can be found to facilitate new technologies that will be rolled out by both new entrants and established LECs. Overall, the Commission must take into account the interests of all parties and balance their needs to ensure the interconnection regime is one that is in the public interest and best serves the customer now and in the foreseeable future.
60. With regard to the appropriate size of the LIRs, the Commission notes that submissions ranged from the TELUS CTB proposal that would decrease the size of the LIRs relative to that currently mandated; through maintaining the status quo, as proposed by the Companies; to substantially increasing the size of the LIRs, as proposed by some of the CLECs.

61. TELUS submitted that, in support of its CTB proposal, the Commission should rely on market forces to dictate the interconnection regime.
62. While subsection 7(f) of the Act calls upon the Commission to foster increased reliance on market forces for the provision of telecommunications services, the Commission considers that the dominance maintained by the incumbents in the supply of near-essential facilities precludes it from relying entirely on market forces to establish an efficient and effective interconnection regime at this time. The Commission notes in this regard that in Order 2001-184, it extended the sunset period for near-essential services because it determined that the market for such facilities was not sufficiently competitive.
63. The Commission notes under TELUS's CTB proposal, the size of the LIR would be substantially reduced and CLECs would be required to deploy hundreds of additional POIs in order to mirror the ILEC network architecture. The Commission considers that connection at the CTB would generally result in extremely underutilized trunking arrangements for all LECs. Furthermore, it would require significant capital investment by the CLECs in new trunks or the use of ILEC trunks and result in an even higher likelihood of stranded investment for a CLEC should the trend of the ILECs to decommission end-offices in favour of hubs continue.
64. The Commission finds that the CTB proposal would increase the overall costs of interconnection for all LECs and would place an inordinate burden on CLECs. The Commission finds further that the CTB proposal is not a suitable interconnection regime as it is neither fair nor cost effective for LECs. The CTB proposal would ultimately be detrimental to LEC customers who would pay more for services as the higher interconnection costs would be recovered in the prices of the services that they obtain.
65. With regard to maintaining the status quo, as proposed by the Companies and VTL, the Commission is of the view that current exchange-level LIRs represent a high capital cost for existing CLECs wishing to expand their geographic coverage and for new service providers wishing to enter the market. Once established, exchange-level interconnection facilities are often underutilized or are of a scale that is not operationally or economically efficient, particularly for small CLECs. Reductions in the costs and increases in the capacity of transport networks over the last decade suggest that larger LIRs may be appropriate.
66. The Commission disagrees with the premise that if CLECs were to construct a local network today, the resulting network architecture would be substantially the same as the ILECs. The evidence provided in this proceeding indicates that the ILECs are moving away from the legacy network architecture of a switch per wire centre to one in which a number of exchanges are served by one host switch. The Commission also notes that this premise fails to take into account those new CLECs whose network architecture and choice of technology do not imitate the ILEC circuit-switch architecture.
67. The Commission notes that technological improvements have greatly reduced the transmission costs of carrying traffic. As a result, the costs of backhauling of traffic, which would increase with an expanded LIR, are now less than those that would have been considered during the proceeding leading to Decision 97-8. This is supported by the fact that both the size of end-office switches as well as the LCAs of the ILECs continue to expand. Further, the

Commission notes that not all CLECs are dependent on ILEC co-location and unbundled loops and, therefore, interconnection at the ILECs central office is not necessarily the most efficient location for a CLEC POI.

68. The Commission considers that, as a combination of the introduction of the new contribution regime, the cost reductions in the transmission costs of carrying traffic, and the introduction of next generation networks by both the incumbent carriers and new entrants, the Companies' proposal to retain exchange-based LIRs does not meet the objective set out in Public Notice 2001-126. In particular, the status quo fails to improve the overall efficiency of interconnection arrangements.
69. The Commission finds that consolidation of exchanges to form larger LIRs, would generally provide for more efficiency, lower the overall costs of interconnection and further the co-carrier relationship between CLECs and ILECs. Consolidating some exchanges would alleviate the problem of underutilized trunks that are generally found in less dense exchanges.
70. The Commission notes that those parties who argued for the consolidation of exchanges not only recommended consolidation of lower, less dense exchanges, but also recommended consolidating large exchanges with many of the smaller exchanges. For example, under Allstream's proposal Toronto which is a large exchange with very high subscriber density would be consolidated with 36 surrounding exchanges. FCI Broadband's proposal recommended consolidating the Toronto exchange with 22 other exchanges. The Commission considers that larger LIRs would generally be more efficient for all carriers. The Commission, however, considers that the consolidation of exchanges as proposed in this proceeding would result in exchanges that are so large that they would force inefficient transport of local traffic over very large distances or significantly reduce the robustness of interconnection arrangements and result in increased economic risks of outages. The Commission, therefore, finds it appropriate to establish LIRs that are larger than the ILEC exchanges, but smaller than the various proposed exchange consolidations.
71. The Commission recognizes that by consolidating some exchanges into larger LIRs there will be some additional costs imposed on ILECs. However, the Commission considers that these will not be significant as long as the LIRs are kept within a reasonable geographic size and density. The Commission is of the view that while ILEC costs will increase due to the requirement to backhaul traffic over longer distances, these will be somewhat alleviated by the cost savings that ILECs will realize by having fewer interconnection points. The Commission notes also that the ILECs have extensive EAS trunking arrangements in place for many of the areas that will be consolidated, which should mitigate additional costs of backhauling. At the same time, since larger LIRs will increase the costs of terminating traffic, the Commission considers it appropriate to allow the ILECs to file revised interconnection rates that take into account the larger LIRs.

Defining the LIRs

72. In determining which exchanges to consolidate for purposes of establishing LIRs, the Commission has decided to broadly align the LIRs to boundaries reflecting a community of interest. The Commission considers that the most neutral and appropriate template for

determining community of interest is the existing provincially defined administrative regions. The Commission notes that these boundaries are not reliant on any network architecture and are therefore competitively neutral. These boundaries are well specified, readily identifiable, and are associated with economic, social and political interests. They also allow the consolidation of exchanges into LIRs without creating too large an interconnection region. The Commission, therefore, finds it appropriate to consolidate exchanges for the purposes of interconnection on the basis of provincially defined administrative regions.

73. In light of the above, the Commission sets out the following rules for ILECs to follow in defining LIRs:
- LIRs are to be established using provincially defined administrative regions, such as municipalities, counties, regional districts, etc.;
 - the entire serving territory of Northwestel Inc. and the entire serving territory of small ILECs, those where local competition is not yet permitted will be excluded from the LIRs;
 - in cases where an exchange is served by a remote switch, the exchange will be included in the LIR of the exchange of the host switch; and
 - the civic address of the largest wire centre, based on network access service (NAS), in each exchange will determine in which LIR the ILEC exchange belongs.
74. Using provincially defined administrative regions, the Commission has defined 337 LIRs nationally. These LIRs are provided in the Appendix to this decision. Where a CLEC is currently operating within a newly defined LIR, the corresponding ILEC is directed to designate a POI within 90 days of this decision.
75. In respect of existing POI arrangements, since the cost to remove and redeploy POIs may be more expensive than retaining them and may be particularly burdensome for CLECs, the Commission considers that the existing POIs should remain in place until such time as a CLEC wishes to alter them.
76. The Commission considers further that parties should not be precluded from entering into other arrangements than those set out in this decision where they consider it to be to their mutual advantage. In particular, the Commission generally considers consolidation of exchanges for the purpose of interconnection to be appropriate, and will accordingly be inclined to approve requests by parties for the expansion of the LIR boundaries established in this decision.

Trunking efficiencies and traffic consolidation

Position of parties

Traffic consolidation

77. The Companies submitted that the current interconnection rules reflected the principle of equality of status for LECs and toll interconnection rules reflected the principle that IXCs must compensate LECs for the cost of providing access to the public switched telephone network (PSTN). The Companies argued that there was no support provided for changes to these principles.
78. The Companies noted that there were separate measurement and/or rating requirements for toll terminating, transiting and EAS transport service. They argued that these services could not be consolidated with other traffic types on a single trunk group. The Companies argued that proposals to consolidate local and toll terminating traffic were not appropriate because they conflicted with toll access arrangements and shifted to the ILEC the responsibility and cost of transporting traffic within the exchange and the LCA.
79. The Companies argued that it would be inappropriate for an ILEC to provide transport services from the POI to the access tandem under a charge that combined both the access tandem rate and the mutual compensation maximum imbalance rate because it would not account for all cost elements and therefore shifted costs to the ILEC. The Companies noted that the mutual compensation rate had been developed on the basis of costs within the exchange whereas the access tandem rate did not include costs for termination to end-office switches that are not homed onto the access tandem.
80. The Companies submitted that where it was technically possible to combine traffic on one trunk, the rates for local and toll interconnection tariffs would have to be reviewed and if traffic were to combine on one trunk, the practice of allowing CLECs to adopt ILEC rates would have to be examined because of differences in capabilities.
81. VTL opposed the proposal to allow LECs to combine toll terminating traffic on bill and keep trunk groups, arguing that it would impose a peer-to-peer model to the IXC-LEC interconnection framework. VTL submitted that such an important modification cannot be undertaken without an overall review of the IXC-LEC interconnection framework and compensation model contained in *Competition in the provision of public long distance voice telephone services and related resale and sharing issues*, Telecom Decision CRTC 92-12, 12 June 1992.
82. Microcell submitted that in Order 98-486, the Commission added a qualification not initially contained in Decision 97-8, that the type of traffic that LECs were entitled to route over bill and keep trunks was "traffic between a pair of LECs that originates and terminates in the exchange (local traffic) in which the LECs are directly interconnected." Microcell asserted that this partitioning of traffic was required to identify contribution-eligible toll traffic. Microcell argued that there was no longer a need for this segregation now that the contribution regime had been changed. Call-Net also supported this view.

83. Microcell objected to the Companies' view that toll terminating, transiting and EAS transport services prevent consolidation due to measurement and/or rating requirements. Microcell argued that ILEC-to-CLEC and CLEC-to-ILEC toll terminating traffic could be combined with local traffic and be subject to the normal local compensation regime of mutual compensation in the form of bill and keep arrangements, supplemented with imbalance charges as necessary.
84. Allstream proposed that existing mutual compensation rates could continue to be used on an interim basis and adjusted in a subsequent proceeding. Allstream submitted that interconnection rates should be based on the cost of interconnection and should not include the cost of switching and aggregation within the LEC's LCA as is currently the case with the existing rate structures.
85. Call-Net argued that all terminating traffic should be treated equally, independently of its point of origination, because in an area served by a POI, the termination cost of a minute of traffic is independent of its point of origination. LondonConnect supported this position. LondonConnect further submitted that the restricted definition of the type of traffic that may be exchanged over bill and keep trunks created practical difficulties. LondonConnect stated that a CLEC that had an LCA that exceeded the boundaries of the ILEC exchange had to negotiate an arrangement with the ILEC to terminate this traffic in the LCA terminating exchange or failing this, pay ILEC toll termination rates for what the CLEC has defined as local traffic.
86. LondonConnect stated that any changes to the existing regime must maintain the existing mandated requirement that the ILECs perform transiting and EAS transport. However, if the ILEC is compensated on a cost basis, LondonConnect considered that transiting and EAS transport could also be combined on bill and keep trunks.
87. Cogeco did not support using the mutual compensation imbalance rate for the tandeming and transport of traffic within an LCA. Cogeco argued that this traffic should be terminated by the ILEC without charge to the CLECs since Bell Canada does not require compensation from independent telephone companies for tandeming and transport with an LCA. Cogeco argued that Bell Canada would be unjustly discriminating against CLECs, and this would be in contravention to subsection 27(2) of the Act.
88. TELUS submitted that traffic exchanged on a bill and keep basis occurred between parties that were providing each other with comparable transport services, within the same geographical area, and incurred comparable costs to do so. TELUS stated that Allstream's compensation approach was not applicable to EAS transport, local transit, EAS transit, toll transit, toll trunking and access tandem services because these services were provided by the ILEC to the CLEC or the IXC and these parties were not providing similar services to the ILEC. TELUS stated therefore that Allstream's proposal that such services be provided over bill and keep trunks was an attempt to shift costs to the party providing the service, and the suggestion that the cost of facilities over which one party provides service to another (without receiving the same service in return) should be shared was illogical.

Toll originating traffic

89. The Companies stated that technical limitations of equal access capability prevented the consolidation of toll originating traffic on local interconnection trunks because toll traffic from LECs to IXCs could not go through an intermediate local end-office switch. Microcell,

Allstream, LondonConnect and TELUS agreed with the Companies and indicated that due to technical reasons there was a need to have separate trunk groups for toll origination traffic. TELUS further added that it is impossible to send toll traffic on TR/GR 317 trunks between a CLEC and an ILEC.

90. Call-Net stated that it recognized that additional functionality existed for a toll call that originated on a direct end-office connection versus a local call (i.e., toll carrier pre-selection), however, because the cost of this functionality had been funded through a start-up cost recovery mechanism, the cost for both originating and terminating were now the same.

9-1-1 and Message Relay Service

91. The Companies noted that the signalling for 9-1-1 and Message Relay Service (MRS) traffic did not use CCS7 and the 9-1-1 traffic had to be delivered to a 9-1-1 tandem switch. These particular services could not be consolidated with other trunk groups.
92. Microcell, Allstream, LondonConnect and TELUS supported the Companies' view.

Commission analysis and determination

93. The Commission is of the view that, even without further changes to the existing trunking arrangements, the introduction of new larger LIRs will improve the trunking efficiency of interconnecting LECs. The ability to combine interconnection facilities previously required to serve individual exchanges into facilities servicing a single POI for a larger LIR will reduce the total number of trunks required while improving the trunk groups' performance.

Terminating traffic within the LIR

94. The Commission notes that some new LIRs will encompass several ILEC exchanges and the termination of traffic that originates within the LIR will continue to be interchanged on a shared-cost basis between the LECs.
95. The Commission notes that some parties have argued that a call that originates outside the LIR should also be allowed on shared cost trunks, so long as the call is to be terminated in the LIR.
96. Calls that originate in one LIR for termination in another LIR would consist of inter-LIR EAS calls or inter-LIR toll calls. The Commission considers that the question to be addressed is should a LEC that either carries these calls from their point of origination to its POI in the terminating LIR be allowed to place these calls on shared-cost facilities.
97. If a LEC operates in the LIR where a call originates and in the LIR where the call terminates, the LEC would carry the call to its POI in the terminating LIR where it would be sent to the LEC of the terminating customer for termination within the LIR.
98. The Commission finds that termination costs for all types of calls within the LIR are the same, irrespective of where the call may have originated. So long as a call is carried up to the POI in the terminating LIR, the call is exactly the same as an intra-LIR call being terminated in the LIR. Accordingly, the Commission finds it reasonable that these calls be routed on the shared-cost trunks for termination in the LIR.

Compensation for shared-cost traffic

99. The Commission notes that, in Decision 97-8, it considered mutual compensation at cost-based rates to be generally more equitable than the bill and keep approach because traffic volumes could be unbalanced between the LECs. However, given the administrative burden of mutual compensation, the Commission mandated the bill and keep approach except in those instances where it was demonstrated that traffic between LECs was not balanced for a significant period of time, in which case mutual compensation was implemented. The Commission notes that no party to the proceeding proposed changes to this rating mechanism. The Commission directs the ILECs to develop the appropriate mutual compensation rates that reflect the newly defined LIRs, and that CLECs mutual compensation rates shall be capped at the ILEC rate.

Terminating traffic outside the LIR

100. The Commission notes that while many exchanges having EAS with one another will form new LIRs, some exchanges having EAS with one another will be assigned to different LIRs. The Commission notes that there will also likely be instances where a CLEC is operating in one of the LIRs, but not the other. In order for a call that originates in the LIR where the CLEC is operating to be terminated in the LIR where the CLEC is not operating, the CLEC would require an EAS transport and termination service from the ILEC. The Commission finds that, in this case, it would not be fair or reasonable to have an ILEC carry this traffic to the terminating LIR without receiving compensation. Unlike the termination costs within the LIR, where on balance it is reasonable to have shared cost arrangements because of the overall efficiency gains and lower costs of termination, the Commission considers that extending the provision of transport and termination service beyond the LIR boundaries would place an undue burden on the ILECs vis-à-vis the CLECs. The costs of providing such a service could become significant for the ILECs and it would not be reasonable to have ILECs transport calls beyond what has been determined to be reasonable geographic areas. The Commission considers that charging for such a service, which would include the appropriate trunk costs, would also provide further encouragement to CLECs to deploy facilities. Accordingly, the Commission finds that EAS transport and termination service (i.e., the carrying and termination of calls beyond the LIR boundary by one carrier for another) must be kept on separate trunks to allow the ILEC the ability to track and charge for the service.
101. The Commission further notes that if as a result of the newly defined LIRs, the costs of EAS transport and termination change from that established as a result of Decision 97-8, the ILECs may file new cost studies for this service.
102. The Commission also considers it reasonable for LECs to charge for any toll calls that they carry and terminate outside the LIR. The Commission finds that the LECs can continue to charge the access tandem rate combined with the DC rate for these purposes. The ILECs may file new cost studies for these services should they find the costs have changed as a result of the newly defined LIRs.

Transit services provided by ILECs

103. In respect of transit services including local, toll and EAS, the Commission continues to be of the view that these services should be kept on separate trunks. Consistent with its determination in Order 98-486, the Commission finds that, given that the CLEC avoids the trunking between itself and another carrier by having ILECs offer transit services, the CLEC should be responsible for the trunking costs needed to acquire these services.
104. As in the case of EAS transport and toll termination services, should the ILECs determine that the costs of transiting have changed due to the newly defined LIRs, the ILECs may file new cost studies for transit services provided within the LIR.

Toll originating traffic

105. The majority of parties agreed that toll originating traffic should continue to be kept on separate trunks. The Companies and TELUS cited technical restrictions as one of the major reasons for keeping these separated.
106. In the Commission's view, the technical limitations as identified by the parties support the need to keep toll originating traffic separate. The Commission therefore considers it appropriate that these trunks remain separate and that the IXC continue to pay for the cost of the trunks through the DC rate.

9-1-1 and MRS

107. The Commission notes that the Companies provided evidence demonstrating that the 9-1-1 and MRS traffic must continue to remain on separate trunks. The Commission also notes that other parties supported this view. The Commission considers it appropriate that the 9-1-1 and MRS traffic will remain on separate trunks.

Transition from existing regime and associated tariff filings

108. As there may be cases where existing interconnection arrangements on an exchange basis remain in effect, the Commission considers it necessary for the current bill and keep approach and mutual compensation rates also remain in effect, to be applied in cases where these arrangements continue to be in place. Similarly, the Commission considers it necessary to retain the current EAS transport and transiting service rates for this purpose. However, the Commission considers it appropriate to modify the existing interconnection arrangements to permit the termination of all traffic interchanged and terminated in the same exchange over the existing bill and keep trunks pursuant to the existing bill and keep approach and, where appropriate, the existing rates for mutual compensation.
109. The Commission notes that this decision does not modify the assignment of numbering resources, the dialing plan and provision of service to subscribers. Also, local number portability continues to provide service provider portability on an exchange basis.

110. To give effect to the new regime, the Commission directs the ILECs to file within 90 days of the release of this decision, cost studies for interconnection rates based on the newly defined LIRs. The Commission also directs the CLECs to adopt those rates approved for interconnection purposes. The Commission notes that until such time as it approves the new interconnection rates, the existing interconnection rates used on an exchange basis are to be used as interim rates for the newly defined LIRs.

POI diversity

Position of parties

111. The Companies submitted that mandating POI diversity was entirely inappropriate. The Companies indicated, however, that POI diversity could be beneficial, as long as the objectives and the benefits of deploying diversity were commensurate with the associated costs. The Companies indicated that their experience with requests for POI diversity was that typically they were asked to create redundant network facilities only to find out that the requesting CLEC would not be doing so. The Companies therefore argued that POI diversity should not be considered unless both parties were prepared to establish transport redundancy.
112. The Companies and TELUS further submitted that POI diversity should be considered on a case-by-case basis through bilateral negotiations and both parties should be required to establish POI diversity with associated route diversity in cases where there is agreement to do so. TELUS argued that there may be other ways to increase the reliability of the network rather than on the basis of POI diversity, which TELUS referred to as the "weakest link" approach.
113. CLECs generally supported the view that POI diversity should be mandated and provided on a shared-cost basis where requested by a CLEC. EastLink, however was of the view that POI diversity would not be required in situations where the ILEC's POI has performed flawlessly and the ILEC had a satisfactory action plan to respond to a significant outage.
114. Allstream, EastLink and FCI Broadband submitted that they had all experienced POI outages. Allstream stated it had experienced two outages that were caused by environmental problems in the space housing fibre optics terminal systems equipment in Ottawa, and by a fire at Bell Canada's Simcoe office in Toronto. EastLink reported two POI outages, both occurring in 2001 that were attributed to ILEC-initiated upgrades to their network. FCI Broadband reported it had experienced numerous POI outages affecting shared-cost facilities and in each case it had worked with Bell Canada to implement routing translations to restore traffic flows through another POI until the initial trouble was resolved.
115. LondonConnect submitted that for the most part, the majority of the ILECs had refused to implement any form of POI diversity on a shared cost basis. LondonConnect stated that only one ILEC had been cooperative in establishing a limited form of POI diversity, at extremely low incremental costs for the ILEC.

116. LondonConnect argued that there was no incentive for a CLEC to demand diversity where it was not justified, and that no criteria should be established that presupposed that a CLEC's request for POI diversity was not reasonable. LondonConnect argued that where shared-cost diversity was requested by a CLEC the onus should be on the ILEC to show why it should not be implemented.
117. Microcell stated that the dominant ILECs have both the means and the motive to force CLECs into a "catch-22" situation, where CLECs must either accept a precarious quality of service or absorb excessive costs of POI diversity to improve robustness in the network.

Commission analysis and determination

118. In Decision 97-8, the Commission mandated the equal sharing of the costs of interconnecting trunks between LECs within an ILEC exchange. However, the decision did not address the issue of cost sharing with respect to redundant facilities. The Commission notes that redundant facilities can involve geographical route diversity and/or redundant POIs.
119. In Order 2000-164, the Commission noted that there was an industry consensus that geographically diverse facilities would not be constructed where both parties agreed not to do so. There was also general agreement that where both parties agreed to implement shared-cost facilities on diverse routes, parties would share equally the cost to construct the facilities.
120. Where a CLEC desired the construction of geographically diverse facilities and the ILEC did not, however, the Commission mandated in Order 2000-164 that shared-cost interconnecting trunks be provided by the ILEC unless the ILEC could demonstrate to the Commission's satisfaction that the geographically diverse interconnecting circuits were not required.
121. The Commission was of the view that a balance needed to be established in the public interest between constructing a robust and reliable network and efficient interconnection configurations that did not impose higher costs than necessary. The Commission indicated that for competition to flourish and the network to function properly with as few outages as possible it was important that the building of shared cost facilities not take place only where both LECs agreed. The Commission noted that the incremental costs to implement geographic diversity were normally higher for new entrants than ILECs and that CLECs would, accordingly, have very little incentive to install unnecessary diversity, even where costs were shared.
122. The Commission notes that in Order CRTC 2000-126, 17 February 2000, it did not mandate the provision of geographically diverse shared-cost facilities when required by an ILEC, or for interconnection between CLECs, since the costs involved could become a significant barrier to competitive entry, particularly by small CLECs.
123. With regard to POI diversity, while this was not considered in Order 2000-164, the Commission finds that the considerations related to POI diversity are similar to those regarding route diversity that led to Order 2000-164.
124. The Commission is therefore of the view that the rationale for mandating geographical diversity is equally applicable to POI diversity. It is in the public interest to ensure robustness and reliability in the network and it would be unfair to impose higher carrier costs on one carrier, the CLEC, who in the majority of cases would be the carrier requesting the POI diversity.

125. Accordingly, the Commission mandates the provision of shared cost POI diversity when requested by a CLEC, unless an ILEC can demonstrate to the Commission's satisfaction that POI diversity is not required. Both the ILEC and CLEC are to implement a second POI and the two carriers are to share equally in the interconnection facilities and trunking costs between the POIs. In cases where a CLEC has requested POI diversity, the Commission also concludes that should an ILEC wish to implement an alternative solution, it would be up to the ILEC to persuade the CLEC to implement the alternative solution rather than POI diversity. Failing to persuade the CLEC of the alternative, POI diversity must be implemented.
126. The Commission further determines that provisioning POI diversity should not be mandated when requested solely by an ILEC. The Commission finds that POI diversity could be very expensive and as such, could impose a significant burden on small CLECs entering the market.

Other issues

127. Other issues in this proceeding include: separation of ISP traffic, indirect interconnection, Bell Canada's MGP service, 9-1-1 route diverse connections and CCS7 A-link interconnections.

Separation of ISP traffic

128. The Companies argued that in the event the Commission changed the current shared-costs arrangements, the rules should exclude ISP traffic from any calculation of traffic imbalance given that it is one-way traffic and is heavily imbalanced towards the LEC with which an ISP is interconnected.
129. Call-Net disagreed with the Companies on the need to alter the current regime to exclude ISP traffic. Call-Net argued that it was the ILECs that had established the bill and keep rates and they would have taken into account one-way traffic such as that caused by ISP traffic, call centres and telephone banking services. Call-Net further argued that dial-up Internet traffic is declining due to high speed Internet growth and would represent an ever decreasing volume of traffic on the bill and keep trunks. Call-Net concluded that there is no reason to separate and measure the dial-up Internet traffic or any other traffic on the bill and keep trunks.
130. The Commission notes that all LECs have ISP dial-up traffic on their local network and that the Companies themselves are major ISPs in the marketplace. The Commission further notes that there are customers other than ISPs that generate one-way traffic.
131. The Commission considers any distortion created by dial-up Internet traffic would be insignificant and excluding it from the bill and keep arrangement would be discriminatory. The Commission concludes that it is neither necessary nor appropriate to remove ISP traffic from the calculation of imbalance traffic.

Indirect interconnection

132. The OTA noted that none of the submissions addressed the scenario where calls that are originated by a CLEC, transited through a large ILEC and terminated via EAS to a small ILEC, which the OTA referred to as an "Indirect Connection."

133. The OTA submitted that indirect connections are happening today in all of the exchanges served by the small ILECs and that, while the large ILEC receives compensation from the CLEC for transiting calls, the small ILEC does not receive any compensation for the call termination. In that context, the OTA submitted that the intermediary LEC should only receive compensation for transiting traffic and that compensation for call termination should be paid to the terminating LEC.
134. The Commission notes the concern raised by the OTA. However, the Commission considers that there is insufficient information on the record of this proceeding and, therefore, finds that it is unable to address the specific matter raised by the OTA in this decision.
135. The Commission recommends that if the OTA considers this issue to be significant that it try to resolve the issue through negotiations between the large ILECs and OTA members. Should that approach fail, the Commission would be prepared to consider the matter further.

Bell Canada's MGP service

136. The Companies submitted that Bell Canada had proposed to make its MGP service available, on a discretionary basis, as an optional functionality for CLECs that would complement existing local interconnection arrangements. Bell Canada had filed this service under Tariff Notice 6597.
137. LondonConnect submitted that Bell Canada's MGP, rather than enhancing the co-carrier relationship of CLECs and ILECs, made CLECs customers of Bell Canada, relying on an optional tariffed service. LondonConnect offered that the general grouping of exchanges proposed under the MGP might provide some insight into the possible consolidation of exchanges for the purposes of interconnection, yet offered no benefit for entrants. LondonConnect submitted that the MGP proposal ought to be given no weight in the Commission's determinations.
138. The Commission notes that Bell Canada originally filed the MGP tariff separate from this proceeding. The Commission notes that the MGP had implications and was inter-related with interconnection matters, and as such, the Commission made the MGP tariff part of this proceeding.
139. The Commission considers that the MGP tariff contravenes the co-carrier relationship being fostered by the Commission for interconnection. The Commission further considers that the determinations made in this decision make the MGP tariff unnecessary for the CLECs. Accordingly, the Commission denies the application.

9-1-1 route diverse connections

140. In their supplementary comments, Cogeco raised concerns about Bell Canada's 9-1-1 tariffs which required route-diverse connections to a pair of 9-1-1 tandems on a DS-1 basis, rather than on a DS-0 basis. Call-Net extended support to the option of ordering 9-1-1 access trunks on a DS-0 basis. No other comments were received on this matter.

141. The Commission notes the concern raised by Cogeco concerning the Bell Canada 9-1-1 tariffs and the need for route diversity to a pair of 9-1-1 tandems on a DS-1 basis. In the Commission's view, there is cause for concern for new entrants who are providing service in areas where lower population results in severely underutilized trunks for 9-1-1 service. The Commission also considers that it is in the public interest to ensure that appropriate trunking arrangements are put in place to ensure the safety of consumers.
142. The Commission finds that the record of this proceeding did not provide sufficient evidence to determine what, if any, revisions should be made to the 9-1-1 interconnecting trunking arrangements to satisfy the concerns of new entrants while ensuring public safety. The Commission directs Bell Canada and Cogeco, and any other party who is interested in the issue of 9-1-1 interconnecting trunking arrangements, to form a CISC 9-1-1 sub-committee to address this issue, with the intent of developing a solution, within 120 days from the date of this decision, that addresses the concern of underutilized facilities for new entrants, while ensuring that public safety is not compromised.

CCS7 A-link interconnection

143. EastLink stated that ILECs should make provisions for interconnection of a switch to a gateway signalling transfer point (STP) in each numbering plan area (NPA) (A-link connection). EastLink also stated that interconnection should be on a shared-cost basis in a similar fashion as the costs of interconnection between signalling points of interconnection (SPOIs) (D-link interconnection).
144. The Companies stated that there was no need for the Commission to mandate each ILEC to provide gateway STPs for CCS7 interconnection in each NPA where it provides service. Currently, all CCS7 interconnections to the Companies' networks are provided through the interconnection to two Bell Canada gateway STP pairs, one pair located in Toronto and the other in Montréal. When one of the Companies has to provide for CCS7 interconnection in an NPA, the Company would make arrangements with one or more of the other Companies to establish the CCS7 interconnection arrangements to a gateway STP.
145. The Companies stated that it disagreed with EastLink's view and stated that there was no justification or requirement for all ILECs to deploy gateway STPs. If a CLEC chose not to deploy STPs, then the CCS7 interconnection arrangements with the ILEC was not viewed in the context of an interconnection between carriers of equal status and the provision of signalling links was not subject to cost sharing.
146. TELUS added that the requirement to provide a STP in each NPA would cause the ILECs to purchase the required equipment thereby incurring unnecessary expense that would offer no apparent benefit.
147. VTL stated that ILECs should make available gateway STP access for CCS7 A-link interconnection in each NPA rather than provide a gateway STP. This requirement would not necessarily require that a STP be provided rather all that would have to be provided is a SPOI in the NPA. In VTL's view, the provision of a SPOI would allow small service providers wishing to interconnect with an ILEC in only one NPA to do so independently of the ILEC's signalling network architecture and at affordable prices.

148. In Decision 97-8, the Commission required that each carrier providing service in an NPA establish a SPOI in the NPA. Each carrier is required to provide access to the CCS7 network it uses at its SPOI and is responsible for any costs associated with configuring a gateway STP and for the cost of the D-link segment between its gateway STP and its SPOI. The cost of the facilities required to provide the D-link segment between carrier's SPOIs is shared because this is a peer-to-peer type of interconnection.
149. In Order 98-486, the Commission determined that an A-link between a local switch and an STP was not a peer-to-peer relationship because A-links the CLEC provided under an ILEC tariff did not have its own STP.
150. The Commission finds that the determinations made in Decision 97-8 and in Order 98-486 with respect to STP interconnection rules continue to be appropriate. The Commission agrees that there is no justification or requirement for all ILECs to deploy gateway STPs in each NPA and requiring STPs in each NPA would cause unnecessary expense without benefit. The Commission, therefore, denies EastLink's request to have their A-link interconnection be on a shared-cost basis.
151. The Commission notes, that should a CLEC request CCS7 D-link interconnection in any of the NPAs where these ILECs provide service, the ILEC would not deploy a gateway STP but would be required to designate a SPOI in the NPA where the CLEC requested interconnection. The costs of the interconnection between the CLEC SPOI and the ILEC SPOI in the NPA would be on a shared-cost basis. The CCS7 trunking costs between the ILEC SPOI and its gateway STP would, on the other hand, not be a shared cost, the ILEC would be responsible for these costs.
152. In light of the above, and although the A-link interconnection is not peer-to-peer, the Commission is of the view that it is discriminatory to have a CLEC who uses A-link interconnection to incur the entire cost of the CCS7 trunking to wherever the ILEC determines its gateway STP will be located, when a LEC using CCS7 D-link interconnection can avail itself of SPOIs in each NPA. The Commission, therefore, finds that it would be more reasonable to have the ILEC designate a SPOI within its NPA for purposes of interconnection of A-links.
153. The Commission, therefore, directs the ILECs to amend and file for approval proposed CCS7 A-link interconnection tariffs which designate a SPOI within each NPA for purposes of interconnection of A-links.

Secretary General

This document is available in alternative format upon request and may also be examined at the following Internet site: <http://www.crtc.gc.ca>

**Provincially defined administrative regions
(proposed as LIRs)**

Provinces of Alberta and British Columbia served by:

**TELUS Communications Inc., Northwestel Inc. and
Prince Rupert City Telephone
(LIRs exclude the serving territories and the
independent telephone companies)**

Alberni-Clayoquot, B.C.	Kootenay Boundary, B.C.
Beaver County, Alta.	Lac Ste-Anne County, Alta.
Birch Hills County, Alta.	Lacombe County, Alta.
Bulkley-Nechako, B.C.	Lakeland County, Alta.
Capital, B.C.	Lamont County, Alta.
Cardston County, Alta.	Leduc County, Alta.
Cariboo, B.C.	Mount Waddington (Island), B.C.
Central Coast, B.C.	Mount Waddington (Mainland), B.C.
Central Kootenay, B.C.	Mountain View County, Alta.
Central Okanagan, B.C.	Municipal District of Acadia, Alta.
Clearwater County, Alta.	Municipal District of Big Lakes, Alta.
Columbia-Shuswap, B.C.	Municipal District of Bighorn, Alta.
Comox-Strathcona (Island), B.C.	Municipal District of Brazeau, Alta.
Comox-Strathcona (Mainland), B.C.	Municipal District of Bunnyville, Alta.
County of Athabasca, Alta.	Municipal District of Clear Hills, Alta.
County of Barrhead, Alta.	Municipal District of Fairview, Alta.
County of Camrose, Alta.	Municipal District of Foothills, Alta.
County of Forty Mile, Alta.	Municipal District of Greenview, Alta.
County of Grande Prairie, Alta.	Municipal District of Lesser Slave River, Alta.
County of Lethbridge, Alta.	Municipal District of Mackenzie, Alta.
County of Minburn, Alta.	Municipal District of Northern Lights, Alta.
County of Newell, Alta.	Municipal District of Opportunity, Alta.
County of Paintearth, Alta.	Municipal District of Peace, Alta.
County of Stettler, Alta.	Municipal District of Pincher Creek, Alta.
County of St-Paul, Alta.	Municipal District of Provost, Alta.
County of Thorhild, Alta.	Municipal District of Ranchland, Alta.
County of Two Hills, Alta.	Municipal District of Rocky View, Alta.
County of Vermilion River, Alta.	Municipal District of Smoky River, Alta.
County of Warner, Alta.	Municipal District of Taber, Alta.
County of Wetaskiwin, Alta.	Municipal District of Wainright, Alta.
Cowichan Valley, B.C.	Municipal District of Willow Creek, Alta.
Cypress County, Alta.	Municipality of Calgary, Alta.
East Kootenay, B.C.	Municipality of Edmonton, Alta.
Flagstaff County, Alta.	Nanaimo, B.C.
Fraser Valley, B.C.	North Okanagan, B.C.
Fraser-Fort George, B.C.	Northern Rockies (formerly called Nelson-Liard), B.C.
Greater Vancouver, B.C.	Northern Sunrise County, Alta.
Kitimat-Stikine, B.C.	Okanagan-Similkameen, B.C.
Kneehill County, Alta.	Parkland County, Alta.

**Provincially defined administrative regions
(proposed as LIRs)**

Provinces of Alberta and British Columbia served by: (cont'd)

**TELUS Communications Inc., Northwestel Inc. and
Prince Rupert City Telephone
(LIRs exclude the serving territories and the
independent telephone companies)**

Peace River, B.C.	Squamish-Lillooet, B.C.
Ponoka County, Alta.	Starland County, Alta.
Powell River, B.C.	Stikine, B.C.
Red Deer County, Alta.	Strathcona County, Alta.
Regional Municipality of Wood Buffalo, Alta.	Sturgeon County, Alta.
Saddle Hills County, Alta.	Sunshine Coast, B.C.
Skeena-Queen Charlotte, B.C.	Thompson-Nicola, B.C.
Smoky Lake County, Alta.	Vulcan County, Alta.

Province of Manitoba served by:

MTS Communications Inc.

Central Plains	Parkland
Eastman	Pembina Valley
Interlake	Westman
Northern	Winnipeg

Province of New Brunswick served by:

Aliant Telecom Inc.

Albert County	Queens County
Carleton County	Restigouche County
Charlotte County	Saint-John County
Gloucester County	Sunbury Counties
Kent County	Victoria County
Kings County	Westmorland County
Madawaska County	York County
Northumberland County	

**Provincially defined administrative regions
(proposed as LIRs)**

Province of Newfoundland and Labrador served by:

Aliant Telecom Inc.

Aurora	Inukshuk
Avalon Gateway	Irish loop
Capital Coast	Kittiwake
Central Labrador	Labrador Straits
Coats of Bays	Long Range
Discovery	Marine and Mountain
Emerald	Mariner
Exploits Valley	Nordic
Humber	Red Ochre
Hyron	Schooner

Province of Nova Scotia served by:

Aliant Telecom Inc.

Annapolis County	Inverness County
Antigonish County	Kings County
Cape Breton County	Lunenburg County
Colchester County	Pictou County
Cumberland County	Queens County
Digby County	Richmond County
Guysborough County	Shelburne County
Halifax County	Victoria County
Hants County	Yarmouth County

Provinces of Ontario and Québec served by:

**Bell Canada, TELUS Communications (Québec) Inc. and
Société en commandite Télébec**

Abitibi, Que.	Bonaventure, Que.
Abitibi-Ouest, Que.	Brome-Missisquoi, Que.
Acton, Que.	Bruce County, Ont.
Antoine-Labelle, Que.	Caniapiscau, Que.
Argenteuil, Que.	Charlevoix-Est, Que.
Arthabaska, Que.	City of Chatham-Kent (formerly County of Kent), Ont.
Asbestos, Que.	City of Greater Sudbury, Ont.
Avignon, Que.	City of Hamilton, Ont.
Beauce-Sartignan, Que.	City of Kawartha Lakes (formerly County of Victoria), Ont.
Beauharnois-Salaberry, Que.	City of Ottawa, Ont.
Bécancour, Que.	City of Toronto, Ont.
Bellechasse, Que.	Coaticook, Que.

**Provincially defined administrative regions
(proposed as LIRs)**

Provinces of Ontario and Québec served by: (cont'd)

**Bell Canada, TELUS Communications (Québec) Inc. and
Société en commandite Télébec**

County of Brant, Ont.	Lac-Saint-Jean-Est, Que.
D'Autray, Que.	Lajammerais, Que.
Des Chenaux, Que.	Lambton County, Ont.
Deux-Montagnes, Que.	L'Amiante, Que.
District of Algoma, Ont.	Lanark County, Ont.
District of Cochrane, Ont.	L'Assomption, Que.
District of Kenora, Ont.	Le Bas-Richelieu, Que.
District of Manitoulin, Ont.	Le Domaine-du-Roy, Que.
District of Muskoka, Ont.	Le Fjord-du-Saguenay, Que.
District of Parry Sound, Ont.	Le Granit, Que.
District of Rainy River, Ont.	Le Haut-Saint-François, Que.
District of Sudbury, Ont.	Le Haut-Richelieu, Que.
District of Thunder Bay, Ont.	Le Haut-Saint-Laurent, Que.
District of Timiskaming, Ont.	Le Rocher Percé, Que.
Drummond, Que.	Le Val-Saint-François, Que.
Dufferin County, Ont.	Leeds & Greenville County, Ont.
Durham Region, Ont.	Lennox and Addington County, Ont.
Elgin County, Ont.	L'Érablie, Que.
Essex County, Ont.	Les Basques, Que.
Frontenac County, Ont.	Les Etchemins, Que.
Grey County, Ont.	Les Jardins-de-Napierville, Que.
Haldimand, Ont.	Les Laurentides, Que.
Haliburton County, Ont.	Les Maskoutains, Que.
Halton Region, Ont.	Les Moulins, Que.
Hastings County, Ont.	Les Pays-d'en-Haut, Que.
Huron County, Ont.	Les-Collines-de-l'Outaouais, Que.
Joliette, Que.	L'île-d'Orléans, Que.
Kamouraska, Que.	L'Islet, Que.
La Côte-de-Beaupré, Que.	Lotbinière, Que.
La Côte-de-Gaspé, Que.	Manicouagan, Que.
La Haute-Côte-Nord, Que.	Maria-Chapdelaine, Que.
La Haute-Gaspésie, Que.	Maskinongé, Que.
La Haute-Yamaska, Que.	Matane, Que.
La Jacques-Cartier, Que.	Matawanie, Que.
La Matapédia, Que.	Mékinac, Que.
La Mitis, Que.	Memphrémagog, Que.
La Nouvelle-Beauce, Que.	Middlesex County, Ont.
La Rivière-du-Nord, Que.	Minganie, Que.
La Tuque, Que.	Montcalm, Que.
La Vallée-de-la-Gatineau, Que.	Montmagny, Que.
La Vallée-du-Richelieu, Que.	Municipalité des Îles-de-la-Madeleine, Que.

**Provincially defined administrative regions
(proposed as LIRs)**

Provinces of Ontario and Québec served by: (cont'd)

**Bell Canada, TELUS Communications (Québec) Inc. and
Société en commandite Télébec**

Niagara Region, Ont.	Témiscouata, Que.
Nicolet-Yamaska, Que.	Territoire de Jamésie, Que.
Nipissing District, Ont.	Territoire de Kativik, Que.
Norfolk Region, Ont.	Territoire de la Basse-Côte-Nord, Que.
Northumberland County, Ont.	Thérèse-De Blainville, Que.
Oxford County, Ont.	Vallée-de-l'Or, Que.
Papineau, Que.	Vaudreuil-Soulanges, Que.
Perth County, Ont.	Ville de Gatineau, Que.
Peterborough County, Ont.	Ville de Laval, Que.
Pontiac, Que.	Ville de Lévis, Que.
Portneuf, Que.	Ville de Longueuil, Que.
Prescott and Russell, Unities Counties, Ont.	Ville de Mirabel, Que.
Prince Edward County, Ont.	Ville de Montréal, Que.
Renfrew County, Ont.	Ville de Québec, Que.
Rimouski-Neigette, Que.	Ville de Rouyn-Noranda, Que.
Rivière-du-Loup, Que.	Ville de Saguenay, Que.
Robert Cliché, Que.	Ville de Shawinigan, Que.
Roussillon, Que.	Ville de Sherbrooke, Que.
Rouville, Que.	Ville de Trois-Rivières, Que.
Sept-Rivières, Que.	Waterloo Region, Ont.
Simcoe County, Ont.	Wellington County, Ont.
Stormont, Dundas and Glengarry County, Ont.	York Region, Ont.
Témiscamingue, Que.	

Province of Prince-Edward Island served by:

Aliant Telecom Inc.

Kings County
Prince County

Queens County

**Provincially defined administrative regions
(proposed as LIRs)**

Province of Saskatchewan served by:

Saskatchewan Telecommunications

Battlefords	Moose Jaw
Big Gully	North East
Border	Northwest
Carlton Trail	Prairie to Pine
Cornerstone	Prince Albert
Cypress Hills	Red Coat
Entrepreneurs 2000	Regina
Etomami Valley	Saskatoon
Gateway	South East
Good Spirit	South Parkland
Great River Lakes	Southwest
Long Lake	Touchwood Hills
Mainline	West Central
Midwest	Yellowhead