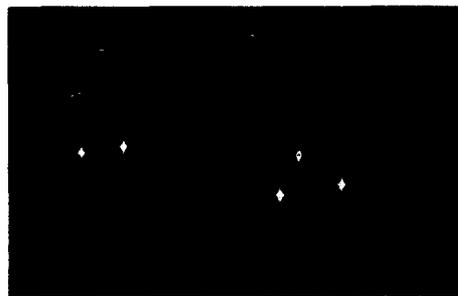


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Market Analysis of the Competitive Local Exchange Carriers and Unbundled Network Elements

May 26, 1999



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PROPOSED RULES

§ 51.xx1 Specific unbundling requirements to be determined by state commissions.

- (a) Where a requesting carrier and an incumbent LEC are unable to reach a voluntary agreement for unbundled access to a particular network element, the state commission conducting compulsory arbitration pursuant to section 252(b) of the Act shall decide whether the incumbent LEC is required to make available the requested element. In making this determination, the state commission shall apply the rules and presumptions set forth in § 51.xx2 and § 51.xx3.
- (b) The carrier requesting access to an unbundled network element shall bear the burden of proving that such access is warranted under the rules and presumptions set forth in § 51.xx2 and § 51.xx3.
- (c) A state commission may not require an incumbent LEC to provide unbundled access to network elements other than those specifically enumerated in § 51.xx3.

§ 51.xx2 Standards for identifying network elements to be made available.

- (a) Non-proprietary network elements
 - (1) An incumbent LEC shall be required to provide unbundled access to a non-proprietary network element if the failure to provide such access would impair an entrant's ability to provide a telecommunications service. If the failure to provide such access would not impair an entrant's ability to provide a telecommunications service, then unbundled access to the element shall not be required.
 - (2) Failure to provide access to an incumbent LEC's network element "impairs" a new entrant's ability to provide a telecommunications service under subparagraph (1) of this paragraph if and only if an equivalent element or a functional substitute is unavailable from a source other than the incumbent LEC or is available from such a source *only* at prices or on terms that would preclude meaningful opportunities for competitive entry by an efficient competitor.
- (b) Proprietary network elements
 - (1) An incumbent LEC shall be required to provide unbundled access to a proprietary element if access to that element is necessary to an entrant's ability to provide a telecommunications service. If such

access is not necessary to an entrant's ability to provide a telecommunications service, then unbundled access to the element shall not be required.

- (2) Access to a proprietary element is "necessary" under subparagraph (1) of this paragraph if and only if:
 - (i) A functional substitute for the incumbent LEC's element is unavailable from a source other than the incumbent LEC or is available from such a source *only* at prices or on terms that would preclude meaningful opportunities for competitive entry by an efficient competitor; and
 - (ii) It is effectively impossible to provide the telecommunications service without access to the incumbent LEC's element or a functional substitute from some other source.
- (3) For purposes of this paragraph, a "proprietary" network element means an element that includes or uses any form of protected intellectual property, including without limitation any information, protocol, or know-how that is protected by patent, copyright, or trade secret law. Such an element shall be considered "proprietary" regardless of whether the protected intellectual property included in or used by the network element is owned by the incumbent LEC or a third party.

§ 51.xx3 Rules and presumptions with respect to specific elements.

In determining whether an incumbent LEC will be required to provide unbundled access to particular network elements under the standards set forth in § 51.xx2, a state commission shall apply the following rules and presumptions:

- (a) Local Loops
 - (1) Except as provided in subparagraph (2) of this paragraph, an incumbent LEC shall be required to provide unbundled access to its local loops.
 - (2) For transmission facilities that connect to an end user premises and that operate at transmission capacities of DS-1 or above, the presumption shall be that no unbundling is required.
 - (3) For purposes of this paragraph, the term "local loop" includes the Network Interface Device (NID) up to and including the demarcation point.

- (4) For purposes of this paragraph, the term “local loop” does not include dark fiber running from an incumbent LEC office to a customer’s premises.
- (b) Operations Support Systems
- (1) Except as provided in subparagraph (3) of this paragraph, an incumbent LEC shall be required to provide unbundled access to its operations support systems for pre-ordering, ordering, provisioning, maintenance and repair, and billing.
 - (2) An incumbent LEC shall not be required to provide unbundled access to operations support systems other than those enumerated in subparagraph (1) of this paragraph.
 - (3) An incumbent LEC may be required to provide unbundled access to its operations support systems only insofar as those systems are used to support elements provided by the incumbent LEC pursuant to section 251(c)(3) of the Act or wholesale services provided by the incumbent LEC pursuant to section 251(c)(4) of the Act. An incumbent LEC may not be required to provide operations support systems to support functions obtained from sources other than the incumbent LEC or elements that are not subject to mandatory unbundling under section 251(c)(3) of the Act.
- (c) Switching—The presumption shall be that an incumbent LEC must provide unbundled access to a circuit switch only if no CLEC has deployed, within 50 miles of that switch, either a circuit switch or a packet switch that is being used to provide voice services. Where one or more CLECs has deployed such a switch within 50 miles of the incumbent LEC switch, the presumption shall be that unbundling is not required.
- (d) Signaling—An incumbent LEC shall be required to provide unbundled access to signaling for any CLEC that purchases circuit switching from the incumbent LEC as an unbundled network element. Where a CLEC does not purchase circuit switching from the incumbent LEC as an unbundled network element, no unbundling of signaling shall be required.
- (e) Interoffice Transmission Facilities
- (1) The presumption shall be that an incumbent LEC must provide unbundled access to its interoffice transmission facilities running to or from wire centers that either (i) serve 20,000 or fewer local loops or (ii) have no collocated CLECs. Where a wire center serves more than 20,000 local loops and has at least one collocated

CLEC, the presumption shall be that unbundling of interoffice transmission facilities is not required.

- (2) Where an ILEC is required to provide unbundled access to interoffice transmission facilities, its obligation shall be limited to the provision of access to specific, individual interoffice transmission facilities identified with particularity by the requesting CLEC.
- (3) For purposes of this paragraph, interoffice transmission facilities do not include dark fiber.
- (f) **Operator and Directory Assistance Services**—An incumbent LEC shall not be required to provide unbundled access to its operator and directory assistance services.
- (g) **Advanced Services**—An incumbent LEC shall not be required to provide unbundled access to facilities used solely in the provision of advanced services, including DSLAMs and packet switches. For purposes of this paragraph, the term “advanced services” shall include “advanced telecommunications capability” as that term is defined in 47 U.S.C. § 157 note.

§ 51.xx4 Overcoming presumptions.

- (a) The presumptions set forth in paragraphs (a)(2), (c), and (e)(1) of § 51.xx3 may be rebutted on the terms provided in this section.
- (b) A state commission may deviate from a presumption set forth in paragraphs (a)(2), (c), or (e)(1) of § 51.xx3 only upon a showing that special circumstances specific to the geographic area warrant a deviation from that presumption. The party seeking the deviation shall bear the burden of proof.
 - (i) A presumption that an element must be unbundled may be overcome only by a showing that, due to circumstances in the particular geographic area, it would be economically feasible for an efficient competitor to obtain an equivalent element or a functional substitute either by self-providing it or by purchasing it from a third party.
 - (ii) A presumption that an element need not be unbundled may be overcome only by a showing that, due to circumstances in the particular geographic area, an efficient competitor would be able neither to self-provide nor to obtain from a third party an equivalent element or a functional substitute.

- (c) Any deviation from a presumption set forth in paragraphs (a)(2), (c), or (e)(1) of § 51.xx3 shall be narrowly tailored to the special circumstances demonstrated pursuant to this section. A state commission approving or ordering such a deviation shall ensure that the geographic reach of the deviation and the types of elements affected are no broader than necessary to address the special circumstances.
- (d) A state commission may not order a deviation from a presumption set forth in paragraphs (a)(1), (c), or (e)(1) of § 51.xx3 based solely on any or all of the following:
 - (1) A showing that the cost of obtaining an element on an unbundled basis from an incumbent LEC would be less than the cost of obtaining the element from another source; or
 - (2) A showing that a *particular* competitor would be unable to compete effectively without unbundled access to the incumbent LEC's network element; or
 - (3) A showing that unbundled access to a particular element would enable a competitor to use *other* unbundled elements in a more efficient manner.

§ 51.xx5 Sunset or relaxation of rules and presumptions requiring unbundling.

- (a) Petitions to sunset or relax unbundling requirements
 - (1) Any party may petition the Commission to lift or relax provisions of § 51.xx3 that require or create a presumption in favor of the mandatory unbundling of specific network elements.
 - (2) A party submitting such a petition shall have the burden of making a *prima facie* case that technological and/or market changes have eliminated the market conditions or competitive concerns that formed the original basis for the imposition of the rule or presumption.
 - (3) Once a petitioning party has established a *prima facie* case under subparagraph (2) of this paragraph, parties opposing the petition bear the burden of demonstrating that lifting or relaxing the rule or presumption would impair the ability of entrants to provide a telecommunications service within the meaning of paragraph (a)(2) of § 51.xx2 or, with respect to a proprietary network element, that continued application of the rule or presumption is necessary to entrants' ability to provide a telecommunications service within the meaning of paragraph (b)(2) of § 51.xx2.

- (4) The Commission shall act on a petition filed pursuant to this paragraph no later than 120 days after the petition is submitted.
- (b) Petitions to add or tighten unbundling requirements
 - (1) Any party may petition the Commission to modify the provisions of § 51.xx3 to add or tighten requirements or presumptions in favor of the mandatory unbundling of specific network elements.
 - (2) A party submitting such a petition shall have the burden of proving that the requested modification satisfies the standards set forth in § 51.xx2.
 - (c) Periodic review
 - (1) Every eighteen months, the Commission shall conduct a review of the rules and presumptions set forth in § 51.xx3. The first such review shall be completed no later than eighteen months after the date this rule takes effect.
 - (2) In conducting these reviews, the Commission shall consider whether, in light of technological and market changes, the rules and presumptions of § 51.xx3 continue to reflect the standards set forth in § 51.xx2. If the Commission finds that any rule or presumption of § 51.xx3 no longer accurately implements the standards of § 51.xx2, the Commission shall revise that rule or presumption.

§ 51.xx6 **Transitional period for change in unbundling obligation**—When an incumbent LEC’s obligation to provide unbundled access to a specific element is lifted or relaxed by either (i) Commission action modifying a rule or presumption set forth in § 51.xx3, or (ii) a finding by a state commission of a change in facts that calls for a different outcome under the applicable presumption or presumptions set forth in § 51.xx3, then the following shall apply:

- (a) Where the incumbent LEC already has committed to provide the element to a CLEC pursuant to an existing interconnection agreement, the incumbent LEC shall continue to provide that CLEC with access to the element at existing rates for a transition period of one year from the effective date of the action or finding triggering the change in the unbundling obligation.
- (b) An incumbent LEC’s obligation during the one-year transition period established in paragraph (a) of this section is limited to transactions that fall within the scope of the incumbent LEC’s preexisting interconnection agreements. An incumbent LEC is not required to provide access to a

CLEC with whom it has no preexisting interconnection agreement providing for access to the element involved. An incumbent LEC also is not required to provide unbundled access to an element in any circumstance in which the obligations of a preexisting interconnection agreement would not apply.

- (c) The incumbent LEC shall not be required to include unbundled access to the element affected by the change in the unbundling obligation in interconnection agreements concluded after the effective date of the action or finding triggering that change. An incumbent LEC's refusal to include unbundled access to the element in such interconnection agreements will not be deemed to violate section 252(i) of the Act.
- (d) After the one-year transition period established in paragraph (a) of this section has expired, an incumbent LEC will have no further obligation to provide unbundled access to the network element affected by the change in the unbundling obligation. Any state law, order, or agreement that purports to require the incumbent LEC to continue to provide unbundled access to that network element is expressly preempted.

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Market Analysis of the Competitive Local Exchange Carriers and Unbundled Network Elements

Purpose of this Submission

This submission provides actual market evidence regarding

- the strategies and capabilities of facilities-based competitive local exchange carriers ("CLECs");
- the market for FCC-identified unbundled network elements ("UNEs") and other network facilities and functions of incumbent local exchange carriers ("ILECs") which might be economically shared with competitors, and
- corroboration of the logic of key U.S. market developments through evidence of market developments in major markets around the world.

This analysis is based upon the business opportunities available to the new entrant in the United States telecommunications marketplace, including what is currently known as the local exchange marketplace. The analysis is particularly based upon whether and how an efficient entrant in the United States market, with primary focus on data and secondary focus on what are known as voice services, could optimally compete in the United States. In August 1998, the question was originally posed to us by just such an entrant, which requested a detailed study of what options were available to it as it considered entering the United States marketplace. The new entrant wanted to understand particularly to what extent it could rely on the facilities of new entrants and to what extent it would be required to rely on the facilities and services of the traditional telephone companies in order to become a viable competitor. The answer with respect to the ILECs was simple: unbundled loops, with conditioning, and collocation. We concluded

that all other elements could be procured from the new players and, moreover, that it was most likely to be efficient to do so.

In addition, this submission provides an analysis of the basis for regulating what is known as unbundling in major jurisdictions. This analysis reveals that there is international policy consensus to address unbundling in terms of economic and market development considerations and to use a finding of market failure as the foundation for an unbundling mandate. Thus, in the other jurisdictions we have studied, mandatory unbundling has been considerably more limited than had originally been ordered in the FCC's initial local competition order and there is no evidence in these other jurisdictions that this more limited regulatory intervention is having a negative impact on the development of competition.

The perspective of this paper is from the point of view of a new entrant in the American telecommunications marketplace, with the emphasis described above. While we have been retained by U S WEST to prepare and submit this analysis to the FCC in its ongoing docket involving the adoption of new network element rules, the conclusions described herein concerning the U.S. market were reached independently of these proceedings and reflect analysis communicated to a potential new entrant as advice on how to compete effectively in the United States. None of the clients for which our underlying analysis was conducted have any stake in this proceeding, other than to the extent to which FCC decision making facilitates -- or possibly discourages -- entry or an ability to access the fruits of advanced infrastructure investment in the carrier's carrier markets. To this extent, the clients for whom our work has been undertaken who have actual or potential U.S. business interests, also have an interest in ensuring that advanced competitive infrastructure is available in the U.S. marketplace on an optimally efficient, highest-quality basis.

About de Fontenay, Savin & Kiss

The firm is a small, interdisciplinary international telecommunications consulting firm founded by two partners, Alain de Fontenay, an economist by training, and Brian Savin, a lawyer by training, who have worked together for over 12 years in the telecommunications industry. The firm is focused on producing analyses of telecommunications-related market developments, business strategies and policy debates for telecommunications companies and government agencies. Most of its work has been on behalf of large foreign telecommunications company clients, both new entrants and incumbents, as well as government agencies. The firm conducts work in three of the major world markets - the U.S., Europe and significant portions of the Pacific Rim - and much of its work stems from requests for comparative market analysis in light of the global nature of telecommunications investment.

Basis and Derivation of Evidence Offered

The material submitted here has been collected and developed over the course of the last 12-18 months for purposes unrelated to this proceeding or any predecessor proceedings. Virtually all of the underlying data were compiled to assist non-U.S. telecommunications companies in making procurement and strategic planning decisions certain of which involved possible entry into the U.S. marketplace, including the local exchange marketplace, and as for others, to assist entry decision involving their own markets. Some of the material has been updated and verified for purposes of ensuring that it remains an accurate representation of current market conditions. In addition, other materials have been examined to ensure that this submission accurately addresses the questions raised by the FCC in this proceeding.

Procurement-related work. In August of 1998 we were commissioned by a large foreign telecommunications company (which has not identified itself to the marketplace and thus will be referred to herein as "New Entrant") to assess the

opportunities for building the North American component of a global data services network out of the offerings of the new American carriers. This work did not include incumbent local exchange companies or the offerings of AT&T, MCI WorldCom or Sprint.

The overall business objective of New Entrant is to procure services/facilities allowing it to create a state-of-the-art network to serve the widest possible variety of U.S.-wide and global data services needs, down to partial T1 frame relay access and eventually voice services. Market entry was intended to begin in the top 10 markets and expand quickly to the top one hundred, pursuing the ability to offer virtually nationwide coverage as quickly as feasible. Intended services encompass international, U.S. national, U.S. regional, and U.S. local data communications.

Pursuant to this objective our firm studied both available backbone and access facilities and services. We surveyed in detail the operations of more than two dozen new carriers operating in a wide range of geographic areas in a variety of market sizes, including but not limited to those identified in Figure 2 on page 25. Over the next five months our work entailed detailed inquiries into the following areas, among others:

- Network descriptions of the major new local carriers, including number and locations of switches and routers, number and locations of POPs, collocation information, significant interconnection details (such as NNIs, transmission facilities, technologies utilized, arrangements with other carriers, vendors/suppliers), and network evolution plans.

- Service descriptions, including current data services and roll out plans.

- Quality control, including security, reliability, and network management and monitoring capabilities.

- In addition, we were asked to review, and render conclusions and recommendations as appropriate, the technology and service utilization trends in the marketplace, including private line, frame relay, ATM and IP-based architectures and services.

This project resulted in a set of recommendations establishing a basis and framework for our client to analyze the various procurement options available to it in the U.S. from among the new carriers. Those recommendations included the following:

- It was possible to utilize the new carriers exclusively to satisfy the North American component of New Entrant's network/services needs. It was economically feasible for New Entrant to do and we endorse that approach.

- There were several procurement options available in pursuing this strategy.

- The market conditions for negotiating commercial arrangements, including price terms, were highly flexible.

Business and strategic planning support work. We have also been engaged in three additional projects in the past 18 months involving studies of unbundling. Our work has been conducted on behalf of both incumbents and new entrants. These projects have required us to assess the use of and demand for unbundled network elements, and the policies toward unbundling, in the EU countries, Canada, and selected countries in the Pacific Rim, as well as the United States.

The development of competition abroad is already significant¹ and the experience of the developing overseas

^{1/} In all OECD countries, "new entrants now account for 19 percent of market share." OECD Communications Outlook 1999.

competitive markets is highly relevant to the strategic business planning being conducted in every advanced country. Each project was commissioned by a telecommunications company trying better to assess competitive market evolution scenarios in their own national markets through understanding developments elsewhere.

Although these projects have each had slightly differing individual objectives, collectively they resulted in

- canvassing the regulatory agencies to inquire about the extent of unbundling which has been requested or permitted and the basis for such decisions, and

- discussion with a sampling of major new entrants concerning their need for and interest in unbundled network elements of the incumbents.

Executive Summary of Conclusions

On the basis of the non-use of UNEs described in this filing, there is reason to question whether any UNE, aside from some unbundled local loops, has played a necessary or even important role in the growth of the competitive market to date.

The new carriers have built and are continuing to build sufficient competitive facilities/services capabilities to permit a new entrant national data entry strategy to be realized through use of new carrier partners virtually exclusively.

Because requiring UNEs has associated costs, all other major jurisdictions who have considered unbundling have undertaken some form of cost/benefit analysis relying on market evidence and economic analysis. This cost benefit analysis has two dimensions: First, is there evidence of a market failure which requires a dominant provider to make a specific UNE available? Second, what is the short term cost/benefit impact of regulating? Third, what impact will the UNE requirement have on longer term competitive infrastructure development and the competitive marketplace generally, given the high degree of technological innovation attending the telecommunications sector?

Market and Technology Trends Overview

Our studies of U.S. market developments revealed both an expansion of telecommunications competition into local access and the metamorphosis of the major facilities-based CLECs from circuit-based to newer data networks of various, actually competing, architectures and technologies. Thus, the local services market is characterized by significant ongoing and still-expanding entry while, at the same time, these new entrants are evolving their networks and business strategies in fundamental ways in response to technology and market changes. There are very rational business reasons for the approaches these CLECs are taking: the quest to optimize their forward-looking cost structures and to be in position to provide the gamut of services they believe customers will want. These evolving networks are very different from the circuit-switched technology which on which the FCC focused its 1996 decision being reexamined here.

To begin, there is no real issue that the 1996 Telecommunications Act spurred the investment of additional capital into the local exchange. The general emergence of competition in access is evident from many sets of industry statistics. Bill Rouhanna, CEO of Winstar, was able to state by early last year:

There is no doubt, none whatsoever, from my point of view, that the Telecom Act has helped the growth of local competition. It is absolutely clear that it tore down many of the legal barriers. It's permitted, in a very short period of time, the growth of an industry -- the CLEC industry -- which has made some very impressive gains.²

The role of UNEs in stimulating this competitive entry, however, is highly speculative beyond making available simple local loops (and concomitant collocation) in some

^{2/} Congressional testimony, Judiciary Committee, March 4, 1998. Testimony on behalf of ATLS (Association for Local Telecommunications Services).

locations. No other major world regulator has imposed such an extensive unbundling requirement. In Europe, by comparison, the principal focus has been the local loop.

Our studies revealed that the basic pre-existing CAP networks have accelerated their expansion, especially with respect to local switching, in an effort to create full facilities-based competition to the ILECs. Additional entry followed using the same business strategy and CLECs have emerged as a significant market force.³

The CLEC fiber-based networks were expanded immediately to reach Class A office buildings in order to provide DID and dial tone to all the customers in the building both large and small. In addition, there was an expansion of the CLEC networks to reach more central offices in areas where collocation could offer the opportunity of reaching a significant body of potential customers. The fiber investment, together with the switches, quickly began to create an infrastructure totally separated from the existing ILEC network. The growth of CLECs makes evident that the consumer has benefited from this new infrastructure, with competitive pricing and increased availability to affordable bandwidth. An "on-net" building provided the CLEC the ability to provision and provide services without the need to incorporate the legacy ILEC OSS platform or the ILEC switches.

^{3/} The rapid growth of new entrants after passage of the 1996 Act is typified by ICG: "The Federal Telecommunications Act of 1996 (the "Telecommunications Act") and pro-competitive state regulatory initiatives have substantially changed the telecommunications regulatory environment in the United States. Under the Telecommunications Act, the Company is permitted to offer all interstate and intrastate telephone services, including competitive local dial tone. In early 1997, the Company began marketing and selling local dial tone services in major metropolitan areas in California, Colorado, Ohio and the Southeast and, in December 1998, began offering services in Texas through an acquired business. During fiscal 1997 and 1998, the Company sold 178,470 and 206,458 local access lines, respectively, net of cancellations, of which 354,482 were in service at December 31, 1998. The Company had 29 operating high capacity digital voice switches and 16 data communications switches at December 31, 1998, and plans to install additional switches as demand warrants." 1998 10K.

In addition to building fiber out to the customer premises, the CLECs found that customers with 12 or more telephone lines could be profitably served via leased ILEC T-1 circuits terminated to a CLEC switch via a collocation. The CLECs were thus able to migrate customers from dedicated long distance circuits and other lines or spans for local service and yet other lines for data services to a single interconnection circuit with mixed services on the facility. The cost of providing service was reduced, the price to the customer was lowered, and the CLEC end user customers actually used less ILEC facilities than they had previously been using.

Extensive facilities have been built by the CLECs in order to compete with the ILECs. Not only have thousands of miles of fiber been deployed but so have hundreds of traditional voice switches and other technologies capable of providing customers services without interfacing to the ILEC switched network. The extent of the CLEC capability was brought into sharp focus through our work for New Entrant. The analysis conducted for New Entrant went beyond assessing market opportunities for an additional entrant. The objective was to determine how much of New Entrant's competitive entry strategy could be feasibly and profitably based upon the new carriers as principal suppliers of facilities/services on a wholesale carriers' carrier basis. The basic results of our findings concerning the capabilities of the new carriers are the starting point of this submission:

CLECs as a Resource for Competitive Entry

In our work for New Entrant, we were able to conclude that every major component of U.S. entry was capable of being procured from among the new carriers, including backbone providers that have extended their operations into local exchange service. It is important to understand that the market does not reflect a clear distinction between local access and backbone companies. Companies with major backbone facilities can and do provide access facilities to their network in some locations, while local access service

companies frequently provide backbone transport services as well.⁴ In particular:

- Compatible access component options viably included:

(a) access handled by a national or regional backbone provider utilizing the CLECs which were collocated in their POPs or other means designated by or negotiated with the end user;⁵ (b) establishing contractual arrangements with regionally appointed CLEC partners which would provide access to all customers of New Entrant in their assigned areas through their own facilities or facilities procured from third parties as to

^{4/} The market is driven by a bundled services approach. ICG describes how customer demand drives bundled service provisioning: "the company believes that its commercial customers are increasingly demanding a broad, full service approach to providing telecommunications services. By offering integrated technology-based communications solutions, management believes the Company will be better able to capture business from telecommunications-intensive commercial accounts. To this end, the Company is complementing its competitive local service offerings with long distance and data service offerings, including its recently offered IP telephony services, and marketing these combined products through IGC's direct sales force and sales agents." 1998 10K.

^{5/} There was a wide gamut of approaches among backbone providers to the access piece. Some preferred to handle customer access arrangements themselves, directly with the end user, in order to ensure quality. One major provider was willing to undertake this responsibility at no additional charge to New Entrant, except for a minor administrative charge in the event the access arrangement involved consolidating a bill with a local services company. Others preferred that access be handled by New Entrant or its designated access company agent(s).

which they would provide quality of service guarantees.⁶

- The available options from the carriers constituted a continuum from procuring raw bandwidth to obtaining managed telecommunications services on a wholesale basis. (In addition, we became aware that raw fiber was available selectively, in some areas, although this was not a focus of study.)

- Another option was to resell the data services of other CLECs. One such company offered frame relay services coverage across over 80% of the U.S. LATAs through an extensive array of NNI agreements and owned network facilities.

These above-described arrangements necessitated no UNEs other than the as-needed unbundled local loop. ILEC switching was not utilized in any of the proposals made to us. Similarly, interoffice transport was generally self-provided by the CLECs studied, or at times incorporated the facilities of other new carriers, particularly the backbone carriers. None of the arrangements we discussed utilized the interoffice transport of ILECs. Use of ILEC OSSs by CLECs was not a matter of expressed concern or interest to New Entrant because these OSSs had little, if any, relevance to ensuring the quality of the CLEC facilities/services offered to New Entrant. CLECs' own OSSs were of some interest where they provided a unique service capability or quality differentiator. Finally, neither the signaling UNE nor operator services and directory assistance were incorporated into CLEC proposals to New Entrant as they are not particularly relevant to the provisioning of the advanced services contemplated by New Entrant.⁷

^{6/} Other viable options were: (c) New Entrant-handled access on an individual case basis weighing for each situation: commissioning CLEC new construction, obtaining existing access services from a CLEC (utilizing the CLEC's own facilities or incorporating unbundled loops of other CLECs or ILECs with which they are collocated), and obtaining access services from an ILEC; (d) customer-handled "meet me" access.

^{7/} See, for example the 1998 10K of Electric Lightwave, which describes the situation typical of larger the facilities-based CLECs: "The

The network capabilities of the new facilities-based carriers are quite extensive and, by any criteria, impressive. The geographic coverage of the new carriers encompasses all major metropolitan areas and is rapidly extending into additional second and third tier cities. The data collected from the companies themselves and other sources indicated that new carriers could collectively provide an advanced, interconnected data services network to New Entrant which could cover a near-term roll out of frame relay, ATM and IP-based services in every one of the top 100 markets in the United States which were of interest to New Entrant -- and in many additional markets as well.

Our data detailed switching capabilities, including ATM switches and major data routers. Currently, most of the major CLECs which started as voice services companies are already operating two essentially discrete networks, voice and data. However, virtually all major facilities-based CLECs, whether predominantly voice or data-focused today, have plans to migrate to a single platform providing voice and higher bandwidth services and all major vendors are supporting this demand.⁸ This service and network integration process has begun with ATM switches replacing traditional voice switching in the backbone, and with voice switches moving to the "edge" of the CLEC networks, along with certain kinds of routers such as the Cascade 9000 and Cisco 7000 series. Arguably the most advanced networks are

Company believes that there will be no material adverse effects on its operations whether or not the FCC ultimately changes this list of network elements. The Company currently is not reliant on unbundled elements in its provision of services."

^{8/} For example, GST described its Virtual Integrated Transport and Access (VITA) network in a recent April 1999 Press Release as follows: "The inherent design allows for rapid customer growth. This is accomplished while maintaining the flexibility necessary to evolve the network as technical standards mature. The VITA network combines GST's voice and data networks onto a single networking platform providing for improved economics and versatility of services. The VITA network utilizes a combination of IP, packet, frame, cell technology, and next generation switching equipment in conjunction with the Central Office switches the Company already operates throughout its territory in the western United States."

utilizing backbone routers such as the Cisco 12012 providing "native IP" backbone routing, and several new carriers are experimenting with Avici TeraRouters. In addition, there is currently keen interest the "soft switch" concept, several examples of which are currently available and which is the subject of standardization efforts.⁹

Voice and data services traffic is also sometimes "backhauled" by the CLECs to remote switches/routers to fully utilize current capabilities. For example, one inquiry into a CLEC's data service capabilities in the State of Michigan produced a proposal showing how needs could be nicely met via a backhaul to a city in another state. The same process is being utilized for voice services, thus permitting CLECs to avoid the purchase of additional voice switches, products which are very rapidly being deemed outmoded by most CLEC engineers and network planners (as substantiated throughout this document), including all with whom we discussed the subject.¹⁰

Switches and routers commonly, if not invariably, sit upon metropolitan and perhaps regional fiber rings either constructed and owned by the CLEC owning the switch/router,

^{2/} The "soft switch" concept seeks to link traditional circuit-switched networks and data networks. A new consortium formed to promulgate standards described the concept in its May 13, 1999 press release as follows: "A group of leading telecommunications companies announced today that they are forming the International Softswitch(SM) Consortium. The purpose of the organization is to promote open standards and protocols, and new application development for a distributed set of hardware and software platforms which can seamlessly interconnect the traditional telephone network with information and applications currently available only over the Internet. This set of technologies operates by distributing functions currently performed by digital circuit switches and is generally referred to as a 'Softswitch.'" The consortium includes new carriers Northpoint, Rythym/ACI, Level 3, and Enron.

^{10/} A typical expression of this widely held viewpoint is Intermedia's: "Intermedia believes that Packet/Cell Switching networks, such as its own, will displace a significant portion of the national telecommunications market that is currently served over traditional circuit switched networks. Intermedia believes this new service offering, when implemented, will accelerate its penetration of the traditional voice services market and provide improved returns on its network investment." 1998 10K.

or by another CLEC with which it is collocated.¹¹ CLEC loops connect a significant number of customers to these rings in most of the major metropolitan areas. Although it was not required for our study to collect comprehensive lists of CLEC loop infrastructure, we nevertheless have knowledge of literally thousands of access lines being provisioned by CLECs in very many metropolitan areas.

In order to provide the FCC a more graphic understanding of the market facts which demonstrate the growth and extent of CLEC capabilities, Appendix A to this submission provides an analysis of the City of Portland. Although it was not necessary to provide this precise analysis to New Entrant, this illustration demonstrates the scope of competitive facilities/services which have come into existence in a relatively brief period of time.

Corroborating evidence on the extensive expansion of CLEC infrastructure found in the New Entrant study is amply available in the public record

The wide scope of CLEC facilities/services reach, in terms of both current infrastructure and near term planning, found in the New Entrant study is amply supported by the public record. Several of the companies who have attained extensive market reach are the following:

-- Intermedia is a company, which has already established itself as a leading provider of frame relay and other specialized services, provides integrated local, long

^{11/} Collocation in ILEC central offices is primarily for the purpose of gaining access to local loops of its customers and, at the tandem level, network interconnection. Traffic is transported from the collection points in the ILEC COs to the CLEC switching facilities. Collocation at other CLEC POPs can provide access to additional customers, or extend the CLEC's network backbone. Collocation with interexchange carriers ("IXCs") allows end users to access the long distance services of the IXCs (the traditional "CAP" function).

distance, high-speed data and Internet services to a rapidly growing customer base:

"Intermedia is the largest domestic independent company among those companies generally referred to as competitive local exchange carriers ("CLECs") (based upon fiscal 1998 telecommunications services revenues) and the largest provider of shared tenant telecommunications services in the United States. Intermedia is also a tier-one Internet service provider, the fourth largest nationwide frame relay provider in the United States (based on frame relay revenues of interexchange carriers), and a rapidly growing provider of Web hosting services to Fortune 2000 companies. With over 950 sales and sales support staff in 70 cities, Intermedia provides services to approximately 90,000 business customers nationwide and in selected international markets through a combination of owned and leased network facilities."¹²

-- Allegiance is a company on schedule to offer competitive voice service to over 40% of the small and medium sized business access lines by the end of next year:

^{12/} The 1998 10K continued as follows: "As of December 31, 1998, Intermedia's network infrastructure included over 347,000 local access line equivalents ("ALEs") in service, 23 voice switches, 177 data switches, over 35,000 frame relay nodes and 680 network to network interfaces ("NNIs"), including NNIs with BellSouth Telecommunications Inc., US West, Sprint, GTE, Bell Atlantic, and Southern New England Telecommunications Corp. ("SNET"). This infrastructure is capable of delivering local, long distance and enhanced data services (including frame relay, asynchronous transfer mode ("ATM") and Internet related services) and enabled Intermedia to address \$100 billion of a \$237 billion national market opportunity by the end of 1998, as compared to \$34 billion at the end of 1997.

Intermedia expects to continue to realize economies of scale on its intercity network: (i) through the continued deployment of local/long distance voice switches to serve its rapidly growing customer base, and (ii) by combining long distance voice traffic between switches with intercity enhanced data and Internet traffic. During 1999, Intermedia plans to introduce a new class of voice services which utilize data protocols ("Packet/Cell Switching") to deliver voice traffic over Intermedia's network."

Allegiance Deployment Schedule			
Market	Service Date	# of non-residential access lines (1,000s)	% of non-residential access lines
New York , Long Island NY & Northern New Jersey	3/98-1999	3,298	6.7
Dallas & Forth Worth, TX	4/98-6/98	867	1.8
Atlanta, GA	4/98	612	1.2
Chicago, IL	9/98	1,951	4.0
Los Angeles, San Jose & Orange county, CA	10/98-1999	3,430	7.0
San Francisco & Oakland, CA	11/98	2,148	4.4
Boston, MA	12/98	649	1.3
Philadelphia, PA	2/99	1,754	3.6
Washington D.C.	3/99	871	1.8
Houston, TX	1999	765	1.6
San Diego	1999	790	1.6
Baltimore, MD	1999	639	1.3
Detroit, MI	1999	821	1.7
Denver, CO	2000	632	1.3
Seattle, WA	2000	779	1.6
Cleveland, OH	2000	654	1.3
Miami, FL	2000	769	1.6
St-Louis, MO	2000	449	0.9
Total		21,878	44.7%

-- By the end of this year ICG's fiber network will pass 10 million access lines in geographic markets covering one third (1/3) of all access lines. An arrangement entered into in February 1999 with Northpoint for provision of DSL technology will permit it to offer DSL service to approximately two-thirds (2/3) of the nation's business lines.

Nextlink, perhaps the most aggressive builder of metropolitan fiber rings for its own retail services business, has described its entry strategy as follows:

"We develop and operate high capacity, local fiber optic networks with broad market coverage in a growing number of markets across the United States. We currently operate 23 facilities-based networks, and provide switched local, long distance, data and enhanced services in 38 markets in 14 states. We serve larger markets, including New York, Los Angeles, Chicago, Atlanta, the San Francisco Bay Area, Denver, Dallas and Miami, medium-sized markets, such as Salt Lake City and Nashville, and clusters of smaller markets in Orange County, California and central Pennsylvania."¹³

The company has shown an impressive vector of growth:¹⁴

AS OF SERVICE	TOTAL ACCESS LINES INSTALLED	MARKETS IN
December 31, 1996.....	8,511	7
December 31, 1997.....	50,131	25
December 31, 1998.....	174,182	37

^{13/} Nextlink 1998 10K.

^{14/} "Based on our recent successes in operating and expanding our existing networks, as well as opportunities arising in other new markets, we are pursuing an aggressive growth plan. We intend to develop networks throughout a majority of the nation's top 30 markets and to serve markets with 27 million addressable business access lines by the end of 2000. The next phase of our expansion plan includes the launch of switched services in Washington, D.C. and Seattle in the second quarter of 1999. We plan to enter other large and medium-sized markets on a stand-alone basis where economic, competitive and other market factors warrant such entry, and will consider pursuing smaller markets where we can extend or cluster an existing network with relatively little incremental capital." Nextlink 1998 10K.

Although the major focus of attention is, of course, the lucrative business market, the residential market is also a target of new CLEC investment -- and again we find that investment to be based upon a combined data/voice platform, for reasons which will be discussed further on in this submission:

"RCN is developing advanced fiber optic networks to provide a wide range of telecommunications services including local and long distance telephone, video programming and data services (including high speed Internet access), primarily to residential customers in selected high density markets. RCN believes that its capability to deliver multiple services (telephone, video programming and Internet access) to any given customer on its networks will provide it with competitive advantages over other competitors. RCN's strategy is to become the leading single-source provider of voice, video and data services to residential customers in each of its markets by offering individual or bundled service options, superior customer service and competitive prices....

"As of June 30, 1998, the Company had approximately 710,000 connections which were delivered through a variety of owned and leased facilities including hybrid fiber/coaxial cable systems, a wireless video system and advanced fiber optic networks."¹⁵

Winstar, a broadband wireless carrier, has also targeted the consumer market in the near future:

"Today we're focused on business customers, but technology is evolving very quickly in super-high frequencies, or fixed wireless, and we will attempt to go to the residential market with

full broadband, two-way services at sometime in the next couple of years."¹⁶

Current Dynamics in Local Services Markets

Building on the most recent trend toward data architectures, more fully described below, 1999 has focused on digital data service -- the year of DSL and high speed access to the Internet. Some of the largest new CLECs have virtually ceased investment in big costly central office switches such as the Lucent 5ESS, Nortel DMS 500, or EWSD from Siemens. Current engineering design and procurement efforts are being devoted to installing IP and ATM backbones, which will be used to provide high digital bandwidth services to the CLEC customer base. Again, the value of "on-net" or dedicated leased customer connections via collocations increases. Today's customers are able to be on the edge of a packet based digital network that can route voice, video, and data without having to transit the legacy switched circuit networks. Not only is the ILEC switched network bypassed but so is the CLEC switched network. The legacy switched network and the UNE's connected with it are already becoming obsolete.

These latest developments are the result of two strong technology trends dominating the current market scene, and as to both we believe it can safely be said that they will continue unabated for the foreseeable future: First, there are ever-building market demand pressures for data-related services extending beyond traditional corporate data transmission over telephone company facilities to both public Internet-type services and special purpose intranet and extranet data communications.¹⁷ Second, there is the

^{16/} Rouhanna testimony, id.

^{17/} Perhaps the most telling indication of the enormity and vector of the changing nature of telecommunications is information about the type of traffic being carried on ILEC networks. Duane Ackerman, CEO of BellSouth, announced on February 8, 1999 that data traffic had surpassed the quantity of voice traffic being carried on the BellSouth network and further predicted that voice traffic would drop to 10% of traffic by 2008.

consequent requirement for greater bandwidth to deliver such services. Indeed, technology change has brought the benefits of higher bandwidth services to small and medium businesses and residential consumers, as high priced T1 lines are replaced by much lower cost bandwidth equivalents.

In light of these demand forces, a basic market reality is that circuit-switched technology does not represent an attractive investment opportunity for many, if not most, new entrants at this point in time.¹⁸ Consequently, the ILEC networks have little to offer these entrants, other than some local loop facilities and collocation space.¹⁹

Our survey showed that a primary test for new entrant network investments is whether such investments will result in creating a cost structure which will allow the firm to be competitive currently and into the foreseeable future in providing the services customers are expected to demand. In line with this concern, the study for New Entrant was focused on data-related procurement needs exclusively. Voice services are intended to be provided over a data architecture over time.

^{18/} We do not dispute the fact that there are some CLEC operators who have focused, and may continue to focus, almost exclusively on circuit-switched technologies to provide facilities-based competitive local voice services. One major category of such CLECs are out of area ILECs who have entered other, often adjacent, territories. The other category is a small group of new entrants. The most notable example of this type is Allegiance, a company which declined to participate in our procurement-related survey because of concern that performing the role of carrier's carrier might distract from their primary business focus of "becoming the alternative dial tone company" for small business customers. (Telephone conversation with senior executive.) However, even Allegiance has recently determined to enter the data market, announcing a DSL offering.

^{19/} Also, ILEC networks are virtually irrelevant to alternative technology builds except for typical network to network interconnection. As the Winstar CEO stated: "Our major point of interconnection with the ILEC...is at the central office level. So we are interconnecting our network with theirs. We do very little resell, and very little purchasing of unbundled local loops or as little as we possibly can."

The change in technology focus, from circuit-switched to IP-based technologies, has been dramatic and sudden. Much of our work for New Entrant was focused on new carriers who had started relatively recently as voice companies and were in the latter half of 1998 still primarily voice services companies, complete with elaborate circuit-switched networks of their own construction. However, most of these voice-based CLECs were as strongly interested in working with New Entrant as were the pure data companies (these latter firms were providing, among other things, Internet/Intranet access to corporations and data services to ISPs). In fact, the facilities-based voice CLECs had much to offer, as they knew how to provide access from a customer premise to a New Entrant backbone. Most importantly, all of the voice-focused CLECs interested in serving New Entrant's needs were themselves at some stage of redefining or expanding their business focus -- and reconfiguring their networks -- to enable the provision of state-of-the-art data services.

It is essential to understand how data services, and not ILEC voice services, are becoming the principal focus of the competitive services industry (often bundled with traditional voice services capabilities which the CLEC may have already installed).²⁰ This advanced technological refocus is a true revolution which is occurring most rapidly with the new entrants because they are in the process of building their networks and making real time procurement decisions.²¹ This revolution is a major reason, in our

^{20/} As J. Shelby Bryon, President of CLEC ICG Communications, Inc, stated recently, "We have to become packet-switching companies in a big hurry or we're not going to be in the exciting part of this industry." Telecommunications Reports, February 15, 1999. The article in which that quote appeared reported more generally that the existing members of the Competitive Telecommunications Association are shifting focus from voice to data services.

^{21/} An example is Nextlink: "We are developing plans for the deployment of data switching and transmission equipment throughout our networks in 2000. To date, our local networks have been used primarily for traditional circuit-switched technologies through our Nortel DMS 500 switches. Our fiber networks have been designed, however, to support the introduction of additional technologies for the switching and transmission of data services. Our networks have also been designed to allow voice, data and all network

view, why the new entrants are not interested in a UNE-based strategy that relies on legacy ILEC facilities.

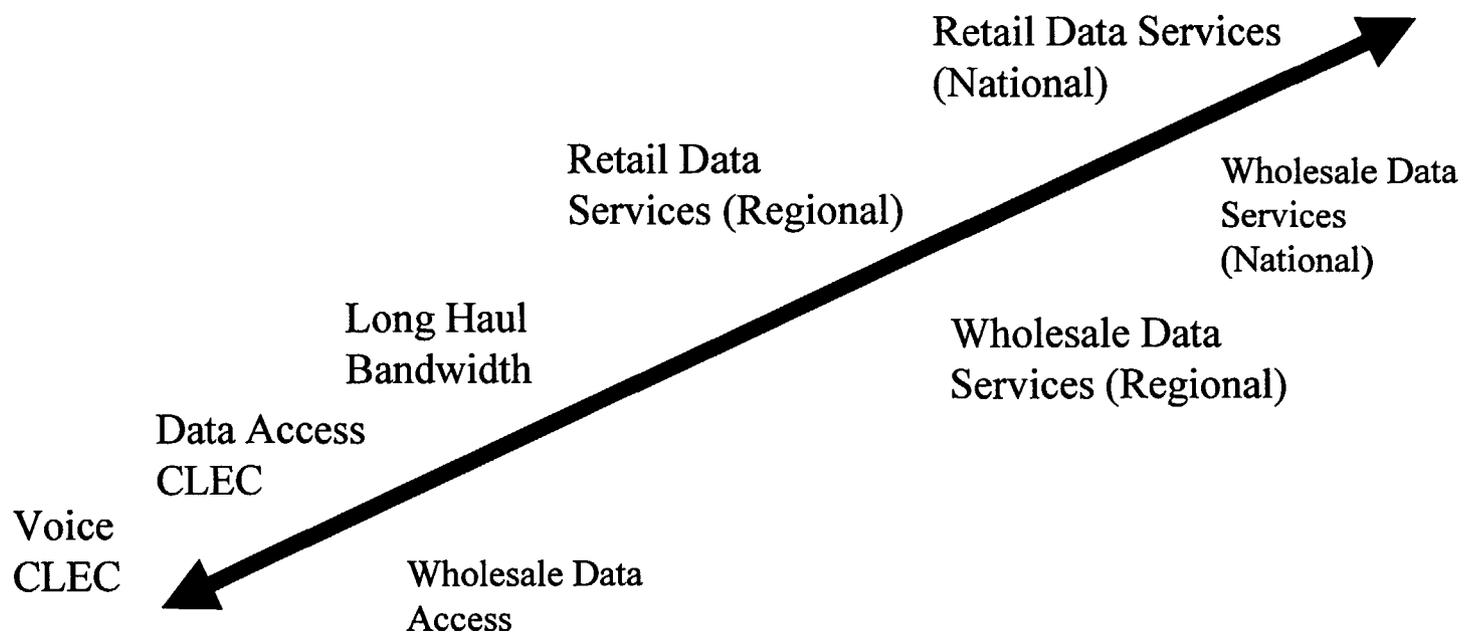
The following graphs show how the business focus of CLECs have expanded well beyond the role of voice.²² Figure 1 shows the options being chosen by the major CLECs, virtually all of which have now extended beyond the traditional circuit-switched voice network. Figure 2 shows the businesses relevant to New Entrant in which the major targets of our New Entrant study were engaged in at the end of 1998. It is interesting to note that the only companies which had not expanded into relevant data services capabilities, Allegiance and RCN, have done so since that time.

applications to be carried over a single infrastructure using an IP based architecture. We anticipate that these newer technologies will allow us to provide a full range of data services more efficiently and cost effectively over our networks, while continuing to provide traditional circuit switched voice services to our customers." 1998 10K.

^{22/} Typical is the Nextlink strategy, the company with perhaps the largest local services metropolitan ring expansion plan among the new carriers: "We offer our customers high quality local, long distance, data and enhanced telecommunications services at competitive prices, individually or as part of an integrated package of services. We are developing a national network strategy to enable us to offer our customers complete, end-to-end voice and data communications services over facilities we control. We are also developing plans for the deployment of data switching and transmission equipment in 2000, including Asynchronous Transfer Mode, or ATM, Internet Protocol, or IP, and frame-relay facilities, and Digital Subscriber Line, or DSL, services and anticipate offering value added services such as complex web hosting and distributed computing applications." Nextlink 1998 10K.

FIGURE 1

Business Strategy Direction



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FIGURE 2

COMPANY	VOICE CLEC	DATA CLEC	WHOLESALE ACCESS	LONG HAUL BANDWIDTH	RETAIL DATA REGIONAL	RETAIL DATA NATIONAL	WHOLESALE REGIONAL	WHOLESALE NATIONAL
Agis					X	X	X	X
Allegiance	X							
Covad		X	X		X		X	
ELI	X	X	X		X	X	X	X
FirstWorld		X	X		X		X	
Globix					X			
GST	X	X	X	X	X		X	
ICG	X	X	X		X	X	X	X
Intermedia					X	X	X	X
IXC				X	X	X	X	X
Level 3		X	X	X	X	X	X	X
MetroMedia	X	X	X					
NextLink	X	X	X	X	X		X	
Northpoint		X			X		X	
Qwest				X	X	X	X	X
RCN	X							
Williams				X			X	X
Winstar	X	X		X	X	X		

de Fontenay, Savin & Kiss

The CLEC Focus on Quality Provisioning

As John Zeglis, President of AT&T, recently announced in connection with AT&T's simultaneous bids to acquire controlling interests in MediaOne and Japan Telecom, "We want to go end-to-end delivering services for our customers on our own architecture."²³

In actuality, this theme is not uncommon among the largest facilities-based CLECs and may even be predominant. It is also a growing theme, as the security, reliability and speed considerations of customer data demands -- from large corporations to surfers of the NET -- have taken center stage.

Furthermore, this theme is carried by both national and regional providers. That, too, is not unusual, as even AT&T cannot always be the end to end provider of all its customer's communications. For this reason, there has also developed a more pervasive concern about quality than, perhaps, ever before. This customer-driven quality demand takes multiple forms: customer demands for SLCs (service level agreements), NNIs (network to network interfaces, which are a form of quality assurance for frame relay and ATM traffic transversing multiple networks), concerns about repair time and maintenance histories, customer desires to better manage their services and control their telecommunications costs, increased interest in the higher value services potentially offered through intranets and extranets, even the speed of simple dial up Internet access.

The demand for quality in terms of reliability and greater bandwidth has driven CLECs to manage their networks as integrated wholes.²⁴ Outside supply is incorporated, but

^{23/} NYT, April 26, 1999, p.C9.

^{24/} "Deploying ATM and frame relay facilities should enable us to offer our customers extensive bandwidth capacity with increased speed and reliability. Our network infrastructure has also been designed to allow voice, data and all network applications to be carried over a single infrastructure using an IP based architecture. We believe that supporting IP technology throughout our network will provide us with an economic advantage, as IP networks provide more efficient use of network capacity. Compared to

primarily in specified situations in which quality can be assured or where facilities are required on a temporary basis before infrastructure build out can be economically justified.²⁵

circuit-switched technologies, IP, as a packet-based technology, is able to transmit packets from several communications sources together simultaneously onto a single circuit or channel. By leveraging the efficiencies of IP technologies, we can lower our incremental cost of providing telecommunications services to our customers. Additionally, IP technology is an open protocol that provides a high degree of flexibility, as it allows for market driven development of new applications for IP networks. IP networks also allow a standard web browser interface for data and applications that makes it easier for end users to access and use these resources." Nextlink 1998 10K.

^{25/} The following description of Nextlink's entry strategy illustrates these points: "Our general strategy is to design and construct high capacity fiber optic networks with broad coverage. We design each network to connect the maximal number of businesses, long distance carriers' points of presence and ILEC principal central offices in the area to be served, using existing rights-of-way and/or rights-of-way that we develop. We have, at times, developed our networks by acquiring fully or partially constructed fiber optic networks or by entering into leased dark fiber and fiber capacity arrangements which allow us, by installing one or more switches and related electronics, to enter a market before we complete the construction of a fiber optic network. We regularly evaluate markets for potential locations to expand our existing networks and to develop new, additional networks. The decision to build or acquire a new network or increase capacity of an existing network is not based on any single factor, but on a combination of a number of factors including:

- demographic, economic, telecommunications demand and business line characteristics of the market and the surrounding markets;
- level of capital expenditures relative to the number of addressable business lines;
- availability of rights-of-way;
- actual and potential competitors; and
- potential for us to cluster additional networks in the region.

If a particular target market is determined to present an attractive market opportunity, we evaluate whether economical acquisition opportunities are available. In some cases a large network can be acquired, and in other cases a small existing network can serve as a starting point for market entry. Using the data collected during preliminary studies and visits with city officials, providers of rights-of-way, potential end users and long distance companies, we develop detailed financial estimates of the costs of constructing a network, including the cost of fiber optic cable, transmission and other electronic equipment, as well as costs related to switching, engineering,

The quality demand has also created satellite market opportunities for some CLECs to serve other CLECs, again all in an effort to acquire quality facilities which can be controlled. As will be discussed herein in greater detail, there is a market for provisioning metropolitan rings, as well as long haul bandwidth. There is a market for provisioning various flavors of xDSL.²⁶ In addition, other companies are specializing in designing customized OSS services which promise CLECs a competitive edge.

building entrance requirements and rights-of-way acquisitions. If the financial estimates deem the project economical, our market development personnel prepare a detailed business and financial plan for the proposed network, including competitive, regulatory and rights-of-way analyses. Based on our review of these analyses, we determine whether to proceed.

"In addition, to construction of new networks, we seek opportunities to leverage existing networks and related equipment by constructing or acquiring networks in adjacent areas. This allows us to expand our operations in areas where we already provide services by establishing a cost effective and operationally efficient cluster of networks in various geographic regions." 1998 10K.

^{26/} Covad is a leading market player in this wholesale market: "The Company also believes that it is developing a service offering that will be increasingly attractive to IXCs and other CLECs. As the Company rolls out its network in 22 markets nationwide, it can increasingly serve as a single packet network service provider to other telecommunications service companies who seek to offer packet based services to their customers. Also, the Company can carry the traffic of multiple IXC and CLEC partners and potentially provide these services at price points that are more attractive than any one other company can provide for itself. These companies are also seeking an alternative to dealing with each ILEC in every region they would like to offer service. Finally, since the Company's networks serve predominately small business and residential end-users these networks are complementary to the large business focused networks of these IXCs and other CLECs. The Company has discussed strategic relationships with both IXCs and other CLECs and intends to continue these discussions as its networks are deployed in its 22 target markets." Covad 1998 10K. In fact, the company announced strategic relationships with AT&T and Nextlink in January 1999.

Similarly, Northpoint is also a major player in the DSL wholesale marketplace, having secured \$125 million earlier this year to finance its expansion into 28 metropolitan areas by the end of this year, with a market access of 4 million businesses and 30 million households. Northpoint has recently entered strategic relationships with ICG and Verio, among others.

In this market context, the ILEC provides less and less of essential value to the CLEC community. Its circuit-switched network, along with its outmoded OSSs are becoming less and less relevant to more and more competitors.

Analysis of the Current List of UNEs

The following discussion reviews the market evidence relevant to each of the UNEs identified in the FCC's original order.

1. local loops

Market evidence suggests that there are two major considerations which can have important impact on regulatory policy development with respect to local loops: The first is technological change. The second is the wide diversity of conditions by geographic location.

Technology change itself has two important aspects. First, there is the development of alternative access technologies and infrastructure. Second, there is the evolution of the current circuit-switched public network.

Alternative access technologies and loop infrastructure build-out

Alternative access technologies already exist and the next generation of alternative access loop technologies are being deployed.

To begin, prices for wireless cellular and PCS services are coming down to a level where many people are actually less hesitant to use wireless for local calling.²⁷ However, the more important long term development for competitive advanced services is the deployment of broadband wireless loops.

^{27/} The wireless market has achieved great penetration in every advanced market. In Finland, the number of wireless access lines actually exceeds the number of wireline connections.

Companies such as Winstar²⁸ and Teligent²⁹ and AT&T have committed substantial capital resources to deploy broadband wireless loop technology across a wide geographic spectrum. AT&T has announced that it is deploying fixed wireless broadband to reach those areas where it does not have cable-TV lines.³⁰ Hardware vendors are actively producing products.³¹

What is particularly noteworthy are the cost characteristics of AT&T's broadband wireless deployment. By attaching an antenna-like device to the side of a house, AT&T can provide as many as four telephone lines of service capable of carrying voice, high-speed data and video similar in bandwidth to cable TV technology -- at a cost quoted by AT&T's Chairman Armstrong of \$750 per home! This technology will be trialed this year and is scheduled to go into widespread deployment next year.

Wireless broadband, and wireless service generally, given recent price trends, are unfolding market realities with very real policy making implications. Wireless is a fully competitive alternative infrastructure to ILEC local loops.

^{28/} The 1998 Winstar 10K states: "We currently have more than 257,000 installed lines serving over 12,000 business customers. We provide service in more than 30 major U.S. markets, including Atlanta, Boston, Chicago, Dallas, Los Angeles, New York City, San Diego, San Francisco and Washington, D.C." Furthermore, it states that there is market need to accelerate its deployment: "In order to take advantage of the benefits derived from early market entry, we recently announced a plan to accelerate the growth of our business by expanding into 60 U.S. markets by the end of 2000, rather than the 40 U.S. markets previously announced."

^{29/} Teligent's addition of New Orleans earlier this year brought to 24 the number of markets in which it serves small and medium business customers.

^{30/} See, Wall Street Journal, March 19, 1999: "AT&T Plans to Enter Some Areas Using 'Fixed Wireless' Technology."

^{31/} For example, Nokia introduced in March 1999 the Eksos B30 utilizing ADSL and ATM technology to add broadband capability to narrowband wireless networks.

Cable telephony and other two-way cable services are also a current market reality. Even without the MediaOne acquisition, AT&T's cable holdings and arrangements concluded to date provide it with access to 40% of the homes passed by cable, giving it the potential to serve as many as 66 million customers with a combined local, long distance and Internet access services.³² Leo Hindery, President of the AT&T broadband and Internet services group, has predicted that AT&T would achieve 25-30% cable telephony penetration in their markets within three years.³³

^{32/} Wall Street Journal, March 19, 1999.

^{33/} Reuters, Research Alert, March 17, 1999.

The addition of AT&T's efforts will likely accelerate already high cable modem deployment prediction rates which have been bandied about in the last year:

Year	Jupiter Communications (Consumer market)		Kinetic Strategies, Telechoice & WSJ		Strategis Group	
		Cable modem		Cable modem		Cable modem
1997						
1998		100,000		100,000		72,000
1999		500,000		500,000		532,000
2000		1,200,000		1,200,000		1,009,000
2001		2,900,000		2,000,000		3,451,000
2002		4,900,000		3,000,000		5,068,000
2003		6,800,000		n/a		6,200,000

Our procurement-related studies of CLECs did not rely on either wireless or cable TV access technologies but focused on alternative fiber build out. The major CLECs which were the focus of our attention were providing significant competitive local loop build-out of their own. Further, virtually all facilities-based CLECs have acquired rights of way in the markets they serve. In addition, we pursued an understanding of when additional build-out would made available to New Entrant customers.

There were two principal aspects to when competitive fiber build-out would occur. First, build-out would be undertaken to Class A commercial buildings and other locations where the prospects of gaining customers was considered good. Second, end user-specific build out would be undertaken where either the build out was immediately profitable (e.g., DS-3 traffic or multiple DS-1s) or where such an end user might be regarded as an "anchor tenant" to justify extending the CLEC transmission network to an area where other customers might be obtained at a later date.