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May 7, 1996

William Caton
Acting Secretary
Federal Communications Commission
1919 M Street, N.W.
Washington, D.C. 20554

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Dear Mr. Caton:

Enclosed are the Original and four (4) copies of a Response to CC Docket No. 96-98, issued April 19, 1996 and replies due May 16, 1996.

Very truly yours,

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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

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In the Matter of	)	
	)	
Implementation of the Local Competition Provisions in the Telecommunications Act of 1996	)	CC Docket No. 96-98 May 16, 1996
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Comments From COMAV, Corp.	)	

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NOTICE OF PUBLIC RULE MAKING - RESPONSE

SUMMARY

COMAV (the "Respondent") is a telecommunications carrier in the Commonwealth of Massachusetts and is presently seeking certain rulings before the Commission regarding the unbundling of certain elements of the CMRS network and service providers. These comments are in addition to those filings and are in response to the NPRM above identified.

The Respondent has taken and continues to take the position that the 1996 Act has been established to ensure, amongst other items, competition in the local loop. In so doing, the Act introduced the ability of new entrants to obtain certain unbundled elements from the existing monopolistic carrier, termed the Incumbent Local Exchange Carrier, I-LEC, as well as have ready interconnection to the I-LEC.

The Respondent has focused on three elements in this Response. Specifically:

- *Interconnection in terms of termination of local traffic and other local access issue are a critical element for the existence for local competition. The Respondent has taken the position that for any form of competition to exists and have the minimum chance of growing then a zero access fee must be enacted. The Commission has taken the position that "Bill and Keep" is a viable option. The Respondent has further taken the position that any form of "cost" based pricing of interconnection will create an immediate barrier to entry to any new entrant. The I-LECs have, as has been demonstrated by the Respondent, continuously and vigorously opposed any*

interconnection and access agreements that allow effective competition. They have done this through regulatory delay, through negotiating delay, and through other oppressive means and methods. The Respondent argues that the only way a new entrant can ever compete is if this barrier to entry is totally removed.

- *The CMRS carriers are in most cases effectively acting as a LEC and if they are a subsidiary of an I-LEC, act as an I-LEC. The CMRS entities can provide exchange services and telecommunications access services and thus are de facto a LEC. As a LEC they represent another competitive alternative in the LEC market place. The Respondent has requested that as a result of this obvious conclusion that the Commission affirm that the I-LEC CMRS be required to unbundle, that all CMRSs be require to remove all tying arrangements and allow direct C-LEC interconnection and not being forced to go through I-LEC interfaces, and that all CMRSs deal equally and equitably with any and all other carriers seeking to purchase access and transport.*

- *Unbundling is a complicated issue and it is shown by the Respondent in this response that the a priori determination of unbundled elements is unacceptable. The Respondent takes the position that the market and technology will determine what the unbundled elements are and that any a priori judgment is doomed to immediate failure. The Respondent has demonstrated several examples wherein this is occurring. For example, one may seek to unbundle the SS-7 framing sequences for use in the CPE side and not within the network. This may allow for significant enhanced services development.*

In addition to the above three general conclusions, the Respondent has presented an adjunct analysis of how these actions may be in violation of certain antitrust statutes, such as, tying arrangements, refusals to deal, and creating barriers to entry, as well as predatory pricing. The Respondent has taken the general position that the Commission should, when there is doubt as to the definiteness of a specific ruling should establish a process rather that boundaries of specific limitations. The Respondent argues that a successful implementations of Sections 251 and 252 will be effected by allowing maximum flexibility and ease of implementation.

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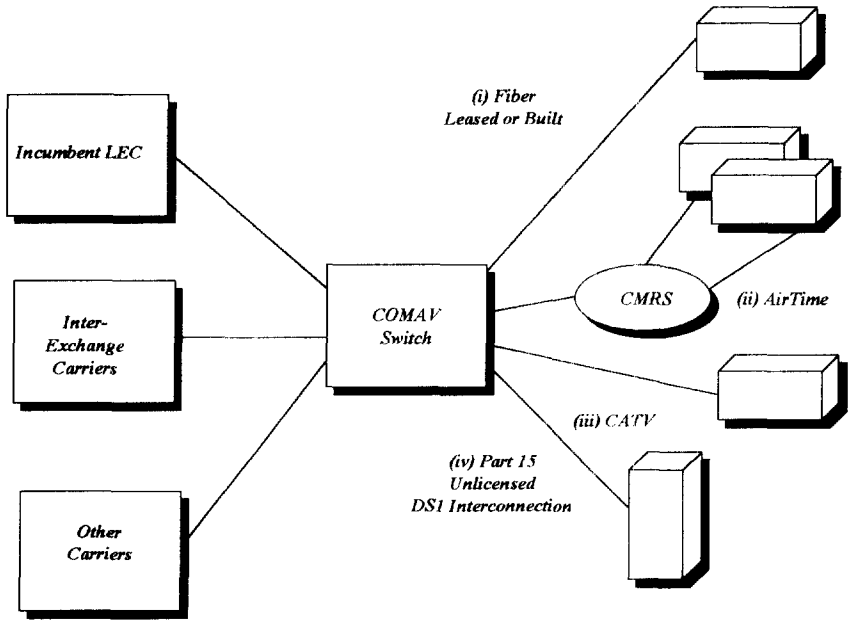
I. INTRODUCTION AND OVERVIEW

The Respondent has filed separately as one of its subsidiaries and also in the position of other entities in prior proceedings before the Commission. The Respondent is an applicant before the Department of Public Utilities as a Common Carrier in the Commonwealth of Massachusetts with the intent of providing a combination of local exchange and exchange like services.

The Respondent is in the business of providing exchange access and telephone exchange services in the Commonwealth of Massachusetts. It proposes to do so in a fashion that utilizes a variety of local transport and interconnection means and methods.

The Respondent will use a telecommunications system which utilizes fixed local telecommunications circuits and connections in combination with wireless circuits which may use radio frequencies and is made up of intersecting base stations, dedicated interconnection facilities to the public switched telephone network, separate transmission facilities, and separate switching facilities. The System consists of an integrated wire-based and wireless-based network, as required to provide the User with Telecommunications Services within the Commonwealth. The following Figure depicts the proposed network that may implement in the Commonwealth for the provision of its services.



In the above, the Respondent proposes to provide its services using a variety of methods and means to connect users of its service to its switch which is located in the Commonwealth. The switch will in turn connect to the Incumbent LEC, the Inter-Exchange Carriers, and other carriers as appropriate. The user interface to the switch may be over an owned and operated facilities such as the Part 15 license free DS1 interconnections to fiber that may build and operate or it may be over other means using different methods and leased from third parties. Included in this third party lease is the provisions of interconnection means provided by a CMRS. The Respondent argues that even though it may use CMRS services as one of several means that this does not make it a CMRS. Specifically as defined below, it is not per se a CMRS and is per se a Local Exchange Carrier.

The Respondent intends to market and sell its services to users in the Commonwealth as if they were local exchange carrier services. It intends to compete with the Incumbent LEC and not necessarily compete with the Incumbent CMRS or the non-Incumbent CMRS. The Respondent has selected a target market, a bundle of service offerings, and a pricing scheme that allows it to position itself as competitor to LECs.

Unlike CMRS resellers who merely hold themselves out to the market as purveyors of cellular CMRS services, the Respondent intends to hold itself out to the market as a local exchange carrier as specified by the FCC (infra)

The Respondent distinguishes itself from CMRS operators and CMRS reseller in two ways; means of user interconnection ("means") and offering made to the public ("offering"). The means that the CMRS uses is generally and currently exclusively the licensed based facility of its cell sites and other such facilities.[1]Thus the CMRS provider provides its service over a singularity of means. In contrast, the Respondent plans to provide its services over a multiplicity of means. As to offering, the Incumbent CMRS offers "cellular" service only. This implies two elements. First it is an offering that is solely and completely dependent on the means available to the CMRS. Secondly, the means has the capability of crossing state boundaries and that, in addition, through roaming, the means allows interstate usage. In contrast, the offering of the Respondent generally is one of local services and specifically intends to be a purveyor of services that are those exclusively a LECs in the Commonwealth. Thus is different in both means and offering from a CMRS.

II. PROVISIONS OF SECTION 251

[1]It should be noted that under Sec. 601 of the Act the CMRS of the Incumbent LEC may now "bundle" together several offerings to the public and hold itself out as a provider of services that uses a multiplicity of means. COMAV bases its agreement that the Incumbent CMRS is now a CMRS alone on the fact that Sec. 601 has not been implemented. COMAV would suggest to the Department that under implementation of Sec. 601 that the Department may again have jurisdiction.

A. Scope of the Commission's Regulations

1. ***We seek comment on how our national rules can best be crafted to assist the states in carrying out this responsibility. We also seek comment on the relationship between sections 251 and 252 and the Commission's existing enforcement authority under section 208.***

The Respondent argues that the Section 208 is for specific complaints of an ongoing basis and that the Section has established and defined policies and procedures. The introduction of a new set of complaint procedures, may be subject to interpretation and thus causing delay and possible confusion. It is strongly recommended that all complaint follow Section 208 as currently structured or as amended from time to time.

B. Obligations Imposed by Section 251(c) on "Incumbent LECs"

1. We seek comment on whether we should establish at this time standards and procedures by which carriers or other interested parties could seek to demonstrate that a particular LEC should be treated as an incumbent LEC pursuant to Section 251(h)(2).

The current market supports several entities, specifically

The ***Local Exchange Carrier***, "LEC", is a provider of local exchange service. A LEC, in it broadest sense, is an entity that provides access to the telecommunications networks directly to an end user. We argue that this broadened definition be employed. Specifically we rely upon the 1996 Act as follows:

"(44) LOCAL EXCHANGE CARRIER- The term "local exchange carrier" means any person that is engaged in the provision of telephone exchange service or exchange access. Such term does not include a person insofar as such person is engaged in the provision of a commercial mobile service under section 332(c), except to the extent that the Commission finds that such service should be included in the definition of such term."

The Act defines ***Telephone Exchange Services*** as *"service within a telephone exchange, or within a connected system of telephone exchanges within the same exchange area operated to furnish to subscribers intercommunicating service of the character ordinarily furnished by a single exchange, and which is covered by the exchange service charge"*

Furthermore the Act defines ***Exchange Access*** as "*means the offering of access to telephone exchange services or facilities for the purpose of the origination or termination of telephone toll services*"

The Act defines one of three LECs, namely the Incumbent LEC, or "I-LEC", specifically, an RBOC or RBOC like equivalent. We present two other LEC characterizations:

Competitive LEC ("C-LEC): The C-LEC is any LEC as defined above who is not an I-LEC but who is recognized for regulatory reasons as a LEC in its actions.

Quasi LEC ("Q-LEC"): A Q-LEC is an entity which acts in all ways or in a majority of ways as a LEC but for regulatory reasons alone is not recognized as a LEC. The CMRS, we argue, fits this category.

It is important to note in the 1996 Act that the LEC status has not necessarily been carried over to the Commercial Mobile Radio Service ("CMRS") provider. The Commission has, at its discretion, the power, right and responsibility to so carry the concept over to a CMRS in the event that market conditions make it so because of the commonality of service offerings. The Respondent has informed the Commission on several occasions of this cross-elasticity in offerings and substitution effect, most recently in its filing in WT 96-6.[2] The Respondent will seek part of its relief under the sum and substance in this clause.

The ***Commercial Mobile Radio Service*** ("CMRS") providers are defined under the 1934 Act, as amended. CMRS providers have been separated by the 1996 Act and this is further segmented by Section 332 definitions that assume the mobile nature is a defining "bright line" characteristic. From Section 332, the Definition of a CMRS is as follows:

"..."commercial mobile service" means any mobile service (as defined in section 153(n) of this title) that is provided for profit and makes interconnected service available (A) to the public or (B) to such classes of eligible users as to be effectively available to a substantial portion of the public, as specified by regulation by the Commission. ."

From the Section 153(n), the definition of a mobile services is as follows:

" "Mobile service" means a radio communication service carried on between mobile stations or receivers and land stations, and by mobile stations communicating among themselves, and includes (1) both one-way and two-way radio communication services, (2) a mobile service which provides a regularly interacting group of base, mobile, portable, and associated control and relay stations (whether licensed

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[2]See Respondents filing on WT 96-6 of February 26, 1996, specifically :

"COMAV and Telmarc, collectively called the "Respondent", seeks to provide the Commission with its perspective regarding the nature of the CMRS providers and their ability to provide fixed services. Specifically, the Respondent seeks the Commission to take note of two facts and the resulting conclusion:

Fact 1: Due to the current tariffs as they are today in the area of Washington, DC, the costs of a business telephone call from Sterling, VA to the District of Columbia, during business hours, is $0.45 per minute. The cost of the same call by means of a wireless carrier, APC, is $0.35 per minute. The business customers in this part of Virginia are now using wireless to connect between Virginia and the District because of price differential. The customers have commodicized the service offering and have selected based solely on the efficiencies of the market pricing mechanism. This simple example of the concept of displacement in a commodicizable market.

Fact 2: The Customer cannot be mandated to use a wireless telephone in a fashion proscribed by law. The early introduction of MCI services allowing any user via an access code found ways to place long distance calls via the complex access codes despite the attempts by the Commission to mandate otherwise.

Conclusion: A wireless telephone is used in a fashion that is mandated by the market and as technology improves, as it is wont to do, then clearly the use will be in a displacement mode with local exchange fixed service."

on an individual, cooperative, or multiple basis) for private one-way or two-way land mobile radio communications by eligible users over designated areas of operation, and (3) any service for which a license is required in a personal communications service established pursuant to the proceeding entitled "Amendment to the Commission's Rules to Establish New Personal Communications Services" (GEN Docket No. 90-314; ET Docket No. 92-100), or any successor proceeding."

It is clear from the definition that to be a CMRS one must have a license issued by the Commission. This is a "bright line" test. Thus, as a CMRS, the Commission has regulatory control vested in from the 1993 changes to the Act.

There are several other players in the market who may or may not be a LEC in their actions. We present two additional players that are common in the market.

Resellers and Agents: Resellers and Agents have for certain purposes been subsumed under the definition and aegis of the CMRS definition if they provide their services as CMRS resell only and it is not clear what they are if CMRS resale is only one of several elements of what they sell. For example, in the Respondents business, the Respondent sells CMRS resell as well as providing resells of other carriers, wire and wireless based, as well as providing access to its own facilities, such facilities not being a CMRS defined facility. The question then is what is this type of carrier. Clearly it provide Exchange Access and Telephone Exchange Services.

The Act has set up an artificial barrier around the CMRS which we argue is artificial, unnecessary, and subject to internal contradictions which will the cause of its own undoing. The Commission has the authority to undo this at this time and to declare a CMRS providing Exchange Access and Telephone Exchange Service as a LEC.

Disaggregators: This type entity is a key differentiation in the market. The Disaggregator is one who may use the existing license holders access facilities as one of several means to provide service to a fixed customer base. In WT 96-6 the Commission raises the issue of allowing the CMRS to provide fixed services. Namely this allows the CMRS, as defined by the Commission, to be a purveyor of what is normally termed "LEC services" and for the purpose of WT 96-6 is called wireless local loop, "WLL". It is argued that the Disaggregator is a different entity altogether and more importantly it is argued that the disaggregator is the most likely evolutionary entity to change as full competition is presented in the wireless market. Further the Disaggregator is an entity that can provide significant additional competitive factors in the market as required by the 1996 Act, specifically, Section 257 of the 1996 Act mandates that the Commission act to support both competition as well as the introduction of new small businesses.

The issue of what is an Incumbent LEC is also made more complex. We have argued previously that an I-LECs CMRS, which we argue is itself a LEC, may act as one and the same as the I-LEC in the market, and that it is through this market power and representation, either through agency or estoppel, that the two entities are as one. Thus

we have argued that the I-LEC's CMRS is a mere extension of the I-LEC and thus should be considered one and the same for Section 251 and Section 252.

The Respondent has argued elsewhere that there are carriers that are de facto Incumbent LECs. Specifically, the Respondent has argued that the Incumbent LECs CMRS, acting under Section 601 of the Act, can be construed as an I-LEC as its presents itself to the market.

The Respondent has argued that the Incumbent LEC and their related Incumbent CMRS should be treated equally. The Respondent has argued as follows in previous filings with the Commission, namely:

(i). The Incumbent LEC under Sec. 251 has a responsibility and duty to unbundle, amongst other such duties and responsibilities

(ii). The Incumbent LEC pursuant to Sec. 601 may now hold itself out jointly and inseparably as one and the same entity in the market and so be indistinguishable from the Incumbent CMRS. As such, this facility granted to the Incumbent LEC by the Act now allows the CMRS to be an agent of or have the apparent authority of, or through estoppel be understood to be, one and the same entity. Thus the Incumbent CMRS is indistinguishable from the Incumbent LEC.

(iii). The Incumbent CMRS must therefore abide by the same rules as the Incumbent LEC and thus must unbundle.

Moreover, collusion between the Incumbent LEC and the Incumbent CMRS is anti-competitive and goes against the heart of the Act in terms of creating competition in the local exchange market.

1. We further seek comment on whether state commissions are permitted to impose on carriers that have not been designated as incumbent LECs any of the obligations the statute imposes on incumbent LECs. ... We seek comment on whether imposing on new entrants requirements that the 1996 Act imposes on incumbent LECs would be consistent with the Act's distinction between the obligations of all telecommunications carriers, all LECs and the additional obligations of all incumbent LECs.

The Respondent argues that given the above extended discussions regarding LECs that the States should and must have the authority to regulate these entities when they hold themselves out as affiliates of the I-LEC or even as CMRS entities providing LEC services.

1. Duty to Negotiate in Good Faith

1. ***We seek comment on the extent to which the Commission should establish national guidelines regarding good faith negotiation under section 251(c)(1), and on what the content of those rules should be. ....***

The I-LEC has a regulatory and legal burden to negotiate in selling its services and products. We have argued elsewhere that the issue is one that has been joined in the antitrust area and that most significant antitrust cases read directly upon the issues at hand. Specifically refusal to deal in a competitive market has a large body of case law that clearly states that in similar situations the I-LEC as the incumbent monopolists must deal with new entrants.

The Telecommunications Act of 1996 removed antitrust protection from the telecommunications industry. In light of that fact, it is necessary to reexamine the implications of the many arrangements that have be customary practice, and view those arrangements in the light that all other similar arrangements can be viewed in all other industries.

Furthermore, telecommunications has, as a result of the Act, become potentially a more competitive environment. Despite the intention to allow competition, the industry also has certain existing structures and interlocking relationships that permit the incumbents to retain significant share by blocking the entrance of new players. This paper focuses on the local exchange market in which the local exchange carrier, "LEC", is the principal player. Twelve years ago the interexchange market was opened up to full competition. The result is an network that allows for strong competition with even stronger competitors. The local exchange market is closed.7

There are several significant changes that are also occurring in the delivery of these types of products that will allow for the dramatic entry of new competitors. These will also be explored. Specifically, technology allows for disaggregation of functions in the delivery of the product. Technology also allows these functions or product elements to be delivered at marginal prices since the inherent scale in the industry is disappearing. Namely the scale economies of copper wire and large switches is now being replaced by the scale-less technology of wireless and ATM or frame relay switching.

The Respondent seeks to discuss the following issues:

i. What is the competitive environment that a new local exchange carrier faces in the market with the structures imposed by the modifications to the Act.

ii. How can the Incumbent Local Exchange Carriers ("I-LEC") exercise their current monopolistic control to delimit new entrants and how can the new Local Exchange Carriers compete.

iii. *What is the role of the Commercial Mobile Radio Service ("CMRS") providers and how are they integrated into the telecommunications environment.*

iv. *What are the unbundled elements that the I-LEC and the CMRS can provided to a the C-LEC in this competitive market.*

v. *How are these elements currently provided and is the means and methods of the current provision a tying arrangement that is an antitrust violation.*

vi. *How should these elements be priced and what is the relative pricing of these elements within the I-LEC and to the C-LEC. Namely, is predatory pricing an issue of concern here.*

vii. *Where is the point of regulatory control and where is the point of antitrust control in this market.*

The regulatory framework has changed dramatically with the passing of the 1996 Act. The Act recognizes that the I-LECs, the incumbent LEC, namely the RBOCs, have had monopoly control, and that for competition to exist they must unbundle, interconnect, co-locate and provide other similar services. Failure to provide such services would result in the FCC refusing to allow the I-LECs to enter certain markets or imposing sanctions.

The legal framework that we shall pose all of the questions are in Sherman, Clayton and the Federal Trade Commission Act. These laws are at the heart of the Federal jurisdiction in controlling competition and ensuring that monopoly players would not have dominant control. Unlike the breakup of long distance telephony, the LEC market is a significantly greater monopoly. This monopoly is controlled by the RBOCs predominantly and thus they have dramatic power to control the rate of introduction of new LEC competitors, called the C-LECs. Evidence over the past fifteen years has shown that the RBOCs have taken all steps possible to delay, deter, and in any other way avoid the introduction of new competitors.

Thus the analysis of this paper is only that will be confined to a reading of the law and its interpretation to such factors as predatory pricing, tying arrangements, barriers to entry, and other specific actions that an I-LEC may take to ensure its survival.

The opportunity is that of new and significant competition in the local exchange market. The paradigm shift is one from a product which has significant scale in production to one that has de minimis scale. The author has shown elsewhere that the average capital per subscriber and the marginal capital per subscriber are equal at low percent penetrations of any market. In addition, due to the scalability of the technology, the plant can be arbitrarily expanded at capital per subscriber can be kept and the minimal scale level. In addition, the author has shown, that the scale in operations costs can also be attained by outsourcing.

The direct implication is that any new entrant can see costs at full scale in a short period of time. Thus if there were a fully open market, new competitors can compete as efficiently as the existing large companies, and in fact may be much more competitive in a shorter period of time.

There are two major trends in the process of allowing and enhancing disaggregation of networks. They are the development of a distributed processing environment and the loss of scale in infrastructure. We shall discuss each of these in some detail since they will be at the heart of our understanding of the new disaggregated networks.

(a) Distributed Processing

Distributed processing is used in a most general fashion. We define Distributed Processing to mean the ability to place different processes (applications programs and other software elements) and processors (hardware computer units and the like) in different physical locations and that via the ability to intercommunication physically and via the ability of having either standard protocol interfaces or through protocol conversion processes, we can effect a virtual single entity from this distributed and physically and logically disconnected system.

The Internet is the paradigm of the distributed system. The antithesis of this is the current voice based telephone network. We argue that having an open and distributed system, both being synonymous, that we create a Petri dish for the rapid evolution of new services and opportunities. All one has to do is to look at the evolution of the Internet over the last three years.

In terms of a distributed system, the concept of "interconnection" used in its broadest sense has significant merit. An open fully distributed system is one that allows for ultimate flexibility. The author has also argued in early 1993 reference that the Internet would be open and distributed and that it was this characteristic that would make it a public thoroughfare.[3]

(b) Loss of Scale

Technology has had a dramatic influence on the cost of entry into a market. More importantly, there is the concept that "silicon is almost free". Namely that we can now construct systems that have low fixed costs and that the capital per subscriber, whether is be average or marginal are almost equal. This means that technological changes have driven scale economies out of the business.

[3]See McGarty, From High End User to "New User", Harvard Kennedy School, May, 1993.

There are three examples of loss of scale. The first is the advent of the ATM (voice packet) or Frame Relay (Long Packet) switches. Unlike the old Central Office switches which are priced at a fixed entry costs of $5,000,000, one can enter a switched voice or data market with an ATM at $50,000, and reach loss of scale at 50 to 100 lines or even less. Fundamentally, ATM fabrics present a level playing field to all entrants.

The second example is wireless, namely CDMA. It has been shown by the author that unlike analog or even TDMA, CDMA cellular reached a capital per subscriber of $200 or less at 30,000 subscribers or less.[4] In the analog world scale was not lost until the subscriber base was ten times that number. Thus PCS using CDMA is almost one tenth the capital per subscriber as the current wire based telecommunications business of the RBOCs.

The third example is the concept of outsourcing. This is the "virtual" loss of scale. One can use service bureaus for billing or customer services that allow for pricing at the margin. The provider of network services no longer is required to provide for all software, computers, personnel, training and infrastructure.

This loss of scale has several dramatic consequences;

i. *Barriers to entry are removed: This means any new entrant may get into some part of the business. Combined with the distributed element, the new entrant may do so at little costs.*

ii. *Economic and Regulatory Rationale for monopolies are eliminated: There is no longer the justification that one large entity, to who consumers are paying monopoly rents, is the best entity due to scale economies. One must re-look at the regulation.*

iii. *Change can be Effected More Swiftly: Loss of scale allow for rapid changes in service offerings by eliminating the concept of sunk costs. Albeit sunk costs are not to be considered in economic decisions. They are frequently a significant factor in delaying change. The elimination of theses virtual burdens should allow for more rapid change.*

We briefly have shown what the structure of the disaggregated network will look like and do so in the context of several specific examples

Disaggregation falls into three dimensions; technical, operational, and relational. We define each as follows:

[4]See McGarty, TPRC, September, 1993.

Technical: Technical disaggregation is the ability to overlay applications and platforms a disparate backbone of transport facilities and create a whole. An example of technical disaggregation is the client server architectures and the LAN networks in common use.

Operational: Operational desegregation is the breaking apart or re-assembling in any fashion the operational or business elements to effect the successful provision of service. Namely we can separate billing, transport, sales, service, and network control into different pots and create a virtual corporate entity. We no longer have to do all. We only have to do that part that we do well. An example of operational disaggregation is the outsourcing business whereby a company, such as a Bell Operating Company, would use an outsourced customer service center to provide this function, or in another context of a bank who outsources all of its telecommunications network.

Relational: This will be the issue of who does what to whom in such entities as electronic marketing and distribution channels in a telecommunications cybernetwork. This is the most recent example of building cybernetworks via relationships. Unfortunately many of the current examples are examples of failure; Prodigy with IBM, CBS and Sears, or MCI and News Corp on the Internet side. In this paper we attempt to focus on the latter two elements. The first has been treated elsewhere.

This disaggregator entity is a key differentiation in the market. The disaggregator is one who may use the existing license holders access facilities as one of several means to provide service to a fixed customer base. In FCC Docket WT 96-6 the Commission raises the issue of allowing the CMRS to provide fixed services. Namely this allows the CMRS, as defined by the Commission, to be a purveyor of what is normally termed "LEC services" and for the purpose of WT 96-6 is called wireless local loop, "WLL". It is argued that the disaggregator is a different entity altogether and more importantly it is argued that the disaggregator is the most likely evolutionary entity to change as full competition is presented in the wireless market.

The author believes that by acting as a "disaggregator" it can effect this competitive position. The disaggregator works on the following principles. The provision of wireless services is based upon the integration of the service elements shown in the following Figure. This integration may be performed as an aggregation or as a desegregation approach. The aggregation is the way most of the CMRS entities now work, having control over all of the elements of "production". The disaggregator may have control of certain strategic elements but will "outsource" others.

The C-LEC is in the business of providing exchange access and telephone exchange services. It does so in a fashion that utilizes a variety of local transport and interconnection means and methods. The C-LEC will use a system which is a telecommunications system which utilizes fixed local telecommunications circuits and connections in combination with wireless circuits which may use radio frequencies and is made up of intersecting base

stations, dedicated interconnection facilities to the public switched telephone network, separate transmission facilities, and separate switching facilities. The system consists of an integrated wire-based and wireless-based network, as required to provide the user with telecommunications services. The Figure in the previous section depicts the proposed network that the C-LEC may implement for the provision of its services.

In that Figure, the C-LEC proposes to provide its services using a variety of methods and means to connect users of its service to its switch which is located. The switch will in turn connect to the Incumbent LEC, the Inter-Exchange Carriers, and other carriers as appropriate. The user interface to the C-LEC switch may be over the C-LEC owned and operated facilities such as the Part 15 license free DS-1 interconnections to fiber that the C-LEC may build and operate or it may be over other means using different methods and leased from third parties. Included in this third party lease is the provisions of interconnection means provided by a CMRS. The author argues that even though it may use CMRS services as one of several means that this does not make the C-LEC a CMRS. Specifically as defined below, the C-LEC is not per se a CMRS and is per se a Local Exchange Carrier.

The C-LEC intends to market and sell its services to users as if they were local exchange carrier services. It intends to compete with the Incumbent LEC and not necessarily compete with the Incumbent CMRS or the non-Incumbent CMRS. the C-LEC has selected a target market, a bundle of service offerings, and a pricing scheme that allows it to position itself as competitor to LECs. Unlike CMRS resellers who merely hold themselves out to the market as purveyors of cellular CMRS services, the C-LEC intends to hold itself out to the market as a local exchange carrier as specified by the FCC.

The C-LEC distinguishes itself from CMRS operators and CMRS reseller in two ways; means of user interconnection ("means") and offering made to the public ("offering"). The means that the CMRS uses is generally and currently exclusively the licensed based facility of its cell sites and other such facilities.[5]Thus the CMRS provider provides its service over a singularity of means. In contrast, the C-LEC plans to provide its services over a multiplicity of means. As to offering, the Incumbent CMRS offers "cellular" service only. This implies two elements. First it is an offering that is solely and completely dependent on the means available to the CMRS. Secondly, the means has the capability of crossing state boundaries and that, in addition, through roaming, the means allows interstate usage. In contrast, the offering of the C-LEC generally is one of local services and specifically the C-LEC intends to be a purveyor of services that are those exclusively a. Thus the C-LEC is different in both means and offering from a CMRS

[5]It should be noted that under Sec. 601 of the Act the CMRS of the Incumbent LEC may now "bundle" together several offerings to the public and hold itself out as a provider of services that uses a multiplicity of means. the C-LEC bases its agreement that the Incumbent CMRS is now a CMRS alone on the fact that Sec. 601 has not been implemented.

2. Interconnection, Collocation, and Unbundled Elements

a) Interconnection

1. ***We further seek comment on the relationship between the obligation of incumbent LECs to provide "interconnection" under 251(c)(2) and the obligation of the incumbent LEC, and all LECs, to establish reciprocal compensation arrangements for the "transport and termination" of telecommunications*** ...

We have argued that there should be free and open access in the interconnection of LECs of any type, whether they be I-LEC, C-LEC, or Q-LEC. The issue of allowing and hopefully fostering competition requires that there networks of all competitors interconnect. This interconnection requires a compatibility of interfaces or an adaptability to meet the interface capabilities. It also requires a stability of that interconnection interface. The computer industry has engendered significant competition by the ability to have all such network interconnect even if a gateway is required to perform such a function. The LEC business must support such an open network.

The I-LEC is the monopoly player whose interconnection requirements may act as a barrier to entry to any new competitor. We argue that it is essential that the I-LEC interconnect in a standard format to any new entrant in a timely fashion and in a fashion that allows for comparable interconnection to any and all other competing LECs.

2. ***On the one hand, the term "interconnection," as used in section 251(c)(2), might refer only to the facilities and equipment physically linking two networks and not to transport and termination services provided by such linking -- in which case there is no overlap in the coverage of the two sections. On the other hand, the term "interconnection" as used in section 251(c)(2) might refer to both the physical linking of the two networks and to transport and termination services -- in which case there is considerable overlap. We seek comment on how to "interpret" the term "interconnection" in section 251(c)(2). Parties that advocate the broader meaning should also comment on the overlap in the coverage of the sections and how the overlap affects which section 252(d) pricing standards apply.***

Interconnection should include any and all mutually required functions and services, whether implemented by equipment, software, or processing, and whether the implementation is performed totally in the location of the interconnection or distributed over a larger domain. In order for an effective and competitive and open network configuration, such interconnection should be made available mutually to all LECs and Q-LECs in any market or across any market.

(1) Technically Feasible Points of Interconnection

1. ***We seek comment on what constitutes a "technically feasible point" within the incumbent LEC's network for purposes of this section.*** ...

The technically feasible points fall into two domains; voice and everything else. The Respondent will focus on voice but make some general comments on data. With regard to voice, the Respondent argues that the interconnection between the I-LEC and the C-LEC or equivalent should be adequate to interconnect all standard and industry acceptable voice interfaces, including and not limited to such interfaces as SONET, with SS-7, and having DS-1, DS-3 etc interfaces. The interconnection should allow for the full and complete initiation and termination of any voice customer on the network in a fashion that is generally consistent with the international network communications. As to data, the interconnection may be selected by market and technology means and will have no standard definition.

(2) Just, Reasonable, and Nondiscriminatory Interconnection

1. ***We seek comment on how to determine whether the terms and conditions for interconnection arrangements are just, reasonable, and nondiscriminatory.*** ....

The Respondent argues that interconnection may be comprised of various "products" and that there may be the concern that the products may not be appropriately unbundled. Thus the I-LEC may act in such a way to create a tying arrangement in the sale of these elements or products. The Respondent argues that the antitrust laws provide significant control over the interconnection as well as unbundling agreements.

(3) Interconnection that is Equal in Quality

1. Section 251(c)(2)(C) requires that the interconnection provided by the incumbent LEC be "at least equal in quality to that provided by the [incumbent LEC] to itself or to any subsidiary, affiliate, or any other party to which the carrier provides interconnection...

The Respondent has no comment on this area.

(4) Relationship Between Interconnection and Other Obligations Under the 1996 Act

1. We seek comment on the various state requirements concerning methods for interconnection....

The Respondent has no comment on this area.

b) Collocation

1. ***Finally, we seek comment on whether we should adopt comprehensive national standards for collocation by readopting our prior standards governing physical and virtual collocation....***

The Respondent has no comment on this area.

c) Unbundled Network Elements

1. Section 251(d)(2) provides that the Commission will "determin[e] what network elements should be made available for purposes of subsection (c)(3)." .... We seek comment on these tentative conclusions.

2. In light of our obligations under sections 251(d)(1) and 251(d)(2), we also seek comment on whether and to what extent, beyond merely identifying network elements that incumbent LECs must provide on an unbundled basis pursuant to subsection (c)(3),....

3. We also seek comment on whether and to what extent we should establish national rules for unbundled network elements ...

The Respondent has argued that the a priori establishment of unbundled elements will lead to impediments to the development of new services. The existence and establishment of unbundled elements as a list of some form of definitive set of elements would clearly fail to include new constructs that would allow the entrepreneur to create new and innovative services, products and systems. The history of telecommunications is rant with examples of where a choice made today is invalidated in a short period of time. For example, if we delimit the element to a DS-1 framing sequence, then we would eliminate any packet network. If we delimit the transmission to certain data rates then we eliminate any multimedia format.

The Respondent has stated in a prior publication the following example. In this example we discussed the introduction of Internet and the acceptance by the RBOCs. The time was 1987 and the audience the officer level players in NYNEX. The speaker was Bob Kahn. Specifically, Kahn was talking about the Internet, TCP/IP and the changing telephone network. The quote is as follows:

"These observations ... based upon two observations that frequently occur in such change mechanisms; namely, changes that we believe will occur in the short term frequently take much longer or never occur, and changes that we expect will take many years have the habit of occurring all too quickly. The example of the first is electronic banking, which every bank thought would be a reality in two years in the 1982 time frame, and the example of the latter is the Web on Internet, which is the embodiment of the electronic marketing and distribution channel. The author owes this observation of change to Bob Kahn. He made this observation, now called ***Kahn's Rule of Technology Expectation,*** *at a conference the author sponsored at NYNEX in June of 1987 at which*

time Bob told the NYNEX officers all about the Internet opportunities. At that time the author was told by the head of MIS for the company that Bob was "totally un-realistic" and that "distributed networks" and the Internet had "no place in reality" in her lifetime. So much for having "keen insight into the obvious". As usual Bob was correct and his observation concerning the timing of the expected was right on target."

The conclusion was that the RBOCs were against any change not because it was threatening but because they could not understand it and thus they would deny it. Therefore any unbundling would have the same fate. Kahn also has recounted the story of trying to get a 300 bps modem from AT&T in the 1970 time frame. They continued to refuse even though it would be used for Government purposes.

Thus the Respondent strongly recommends that the Commission establish a process and not establish a list of approved "elements".

(1) Network Elements

1. We seek comment on our more flexible interpretation of "network element," and how to apply the definition in accordance with the unbundling proposals discussed below.

2. ***We also seek comment on the apparent distinction, drawn in the definition of "network element" in the 1996 Act, between the "facility or equipment used in the provision of a telecommunications service," and the service itself.*** ....

The term "Network Element" may be in the eye of the beholder. There are at least three views of network elements; functional, market, and accounting. The functional network are thus items that a company uses in the delivery of its product or service. It may include local outside plant transport, which may or may not be isomorphic with local loop. The functional element is controlled by the definition of the business function being performed. The market network element is defined as the element as viewed on the part of the customer as a necessary element in the delivery of the service. Such an example is customer service and bill problem resolution. This implies access to such functional network elements as a real time billing feed and a connection to the customer records and possibly SS-7 interfaces. The accounting network elements are those characterizations that meet the requirements frequently of the rate based accounting system for an RBOC.

having briefly stated at least three dimensions in this area, we argue that there is no clear defined term as network element. The network element is what the business entity needs to effectively deploy a new product or service. It is what is reasonably provided by the I-LEC in a "normal" course of doing business in a normally "competitive" environment. It also can be a barrier to entry to any new competitive entrant to the market.

As to the definition, we argue that the solution is process not definitions. The process exists in Section 252 wherein the new entrant is allowed to "put" the request to the I-LEC and then upon refusal to elicit remedies in light of the time certain allowed and stipulated in Section 252.

(2) Access to Network Elements

1. We seek comment on this and any alternative interpretations of section 251(c)(3).

The Respondent does not seek to answer this Section.

(3) Specific Unbundling Proposals

1. We address below four categories of elements: loops, switches, transport facilities, and signaling and databases....

The respondent believes that this generalization is acceptable only in the context of high level generalizations. Let us propose three examples wherein the problem starts to occurs and then propose some solutions.

(a) Local Loops

1. We propose to require incumbent LECs to provide local loops as unbundled network elements...

2. We first seek comment on whether and the extent to which the Commission should prescribe a set of minimum requirements ...

The Respondent has no comment on this area.

(b) Local Switching Capability

1. In addition to the local loop, we tentatively conclude that incumbent LECs should provide unbundled local switching capability as a network element. ...

The Respondent has no comment on this area.

(c) Local Transport and Special Access

1. We propose to require unbundling of LEC facilities that correspond to the current interstate transport and special access rate elements...

The Respondent has no comment on this area.

(d) Databases and Signaling Systems

1. We request that commenters identify the points at which carriers interconnect with LEC SS7 networks today and the signaling and database functions currently provided by incumbent LECs on an unbundled basis. Commenters should also discuss the technical feasibility of establishing other points of interconnection and other unbundled signaling and database functions not currently offered by incumbent LECs.

2. *Finally, we request comment on other network elements to which the Commission should require access on an unbundled basis, and specific standards that should govern their unbundling. For example, the statutory definition of network element includes "subscriber numbers" and "information sufficient for billing and collection or used in the transmission, routing, or other provision of a telecommunications service...*

The Respondent has no comment on this area.

d) Pricing of Interconnection, Collocation, and Unbundled Network Elements

(1) Commission's Authority to Set Pricing Principles

1. We seek comment on this tentative conclusion.

The Respondent has no comment on this area.

(2) Statutory Language

1. Section 251(c)(2)(D) requires that incumbent LECs provide interconnection "on rates, terms, and conditions that are just, reasonable, and nondiscriminatory, in accordance with . . . the requirements of this section and section 252." ...

1. Further, we believe that any pricing principles we adopt should be the same for interconnection and unbundled network elements...

The pricing should reflect their own internal transfer pricing. The Respondent believes that the I-LEC can determine the costs of any and all unbundleable elements. In fact, the Respondent argues that the I-LEC must perform those functions if it wants to be competitive in the market. Unlike the rate based schemes wherein the accounting principles are determined to maximize rate base and thus return, the new challenge for the I-LEC is to be competitive and to do so without a rate based scheme. This then demands that the cost analysis on an unbundled and disaggregated basis can readily be obtained.

(3) Rate Levels

1. ...."may include a reasonable profit... such as long-run incremental cost (LRIC). We seek comment on this view of the meaning of section 252(d)(1).

(a) LRIC-Based Pricing Methodology

1. We invite parties to comment on the costing methodologies used by these and other states, and on the extent to which these approaches are consistent with the pricing principles and goals of the 1996 Act. .....

(b) Proxy-Based Outer Bounds for Reasonable Rates

1. We also seek comment on the benefits, if any, of adopting a national policy of outer boundaries for reasonable rates instead of specifying a particular pricing methodology. ....

(c) Other Issues

1. We seek comment on the extent to which embedded or historical costs should be relevant, if at all, to the determination of cost-based rates under section 252(d)(1). .....

2. Finally, we note that certain incumbent LECs have advocated that interconnection rates be set based on the "efficient component pricing rule" (ECPR) proposed by economist William Baumol and others..... We tentatively conclude that use of the ECPR or equivalent methodologies to set prices for interconnection and unbundled network elements would be inconsistent... Moreover, we seek comment on whether such a pricing methodology, if used by a state, would constitute a barrier to entry as under section 253 of the 1996 Act.

(4) Rate Structure

1. We seek comment on whether, pursuant to section 251(c)(2), (c)(3), (c)(6), and 251(d)(1), we should adopt rate structure principles .....

2. We also seek comment on whether we should adopt any rules for pricing of shared facilities. .....

(5) Discrimination

1. We seek comment on the meaning of the term "nondiscriminatory" in the 1996 Act compared with the phrase "unreasonable discrimination" in the 1934 Act. .....

(6) Relationship to Existing State Regulation and Agreements

1. The Respondent has no Comments on this Section.

e) Interexchange Services, Commercial Mobile Radio Services, and Non-Competing Neighboring LECs

1. In this section, we address whether the terms of section 251(c) cover interconnection arrangements between incumbent LECs and providers of interexchange services, CMRS providers, and non-competing neighboring LECs.

The Respondent has argued that the CMRS is a Q-LEC and that the Commission should render it a LEC for certain purposes. The Commission has ruled that the I-LEC must provide the CMRS with interconnection. There are however several other dimensions that must be considered. Specifically; if the CMRS is an I-LEC, then it should perforce of that position do as an I-LEC in Section 251, if the CMRS is a LEC then it should allow interconnection to any other LEC, and if the CMRS is a common carrier, even though it be a wholesale only entity, then it should sell to all purchasers in a non-discriminatory fashion.

The Petitioner has argued that the Incumbent LEC and their related Incumbent CMRS should be treated equally. The Petitioner has argued as follows in its initial filing:

(i). The Incumbent LEC under Sec. 251 has a responsibility and duty to unbundle, amongst other such duties and responsibilities.

(ii). The Incumbent LEC pursuant to Sec. 601 may now hold itself out jointly and inseparably as one and the same entity in the market and so be indistinguishable from the Incumbent CMRS. As such, this facility granted to the Incumbent LEC by the Act now allows the CMRS to be an agent of or have the apparent authority of, or through estoppel be understood to be, one and the same entity. Thus the Incumbent CMRS is indistinguishable from the Incumbent LEC.

(iii). The Incumbent CMRS must therefore abide by the same rules as the Incumbent LEC and thus must unbundle.

Moreover, collusion between the Incumbent LEC and the Incumbent CMRS is anti-competitive and goes against the heart of the Act in terms of creating competition in the local exchange market.

The Respondent argues that each CMRS has a duty and obligation to provide interconnection to any local exchange carrier in the same manner in which it provides