GVNW

May 15, 1996

VIA OVERNIGHT DELIVERY

Office of the Secretary
Federal Communications Commission
1919 M Street, N.W., Room 222,
Washington, D.C. 20554

RE: CC Docket No. 96-98

Enclosed for filing with the Commission are an original and 17 copies of the Comments of GVNW Inc./Management in CC Docket No. 96-98. Please return one stamped copy in the enclosed envelope.

Sincerely,

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

In the Matter of	)	
	)	
Implementation of the Local Competition	)	
Provisions in the Telecommunications Act	)	CC Docket No. 96-98
of 1996	)	

COMMENTS OF GVNW INC./MANAGEMENT

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SUMMARY

GVNW is a consulting firm representing small independent local exchange carriers (ILECs) from a number of states. Issues of major concern upon which we comment include the following:

a. Operations of small ILECs are substantially different from those of large ILECs. Establishment of a single set of national standards that impact all ILECs based on large company procedures, networks, and operations will likely impose large additional costs on small ILECs.

b. The Commission should not establish national standards based on large ILEC operations for all ILECs. Such standards would not only impose the costs mentioned above but could be severely detrimental to small ILEC network operations.

c. Interconnection and unbundling standards for small ILECs will likely need to differ from large company standards because of differences in network construction and operational procedures.

d. Network integrity and reliability should be a primary consideration in establishing interconnection points and standards.

e. Costs of providing service for small rural ILECs are substantially different from those of large ILECs and vary considerably between individual ILECs. The Commission should not

adopt proxy prices or ceiling prices for interconnection services and network unbundling. Pricing procedures should take into account individual cost differences between individual ILECs.

f. Incremental pricing procedures, if pursued, need to be flexible enough to recognize the differences between cost, operational, and organizational structures of small and large ILECs. Small ILEC costs will be different from large ILEC costs even on an incremental basis.

g. One of the major factors that will assure the continued deployment of telecommunications infrastructure, will be the adoption of pricing and regulatory policies which allow companies a reasonable assurance of earning an adequate return on future investments.

GVNW Inc./Management (GVNW) is a consulting firm representing small incumbent local exchange companies (ILECs). In response to the Commission's Notice of Proposed Rulemaking (NPRM) in the above referenced docket, GVNW offers the following comments.

NPRM Paragraph 30. The FCC should not implement uniform national rules for interconnection and network unbundling. Uniform national rules will not reflect the differences in the existing Incumbent LEC (ILEC) networks. The differences in existing ILEC networks and operating procedures will cause costly network upgrades to be placed to comply with uniform national rules. These upgrades may not be necessary due to lack of competition at a particular location, or the lack of desire on the part of the competitor to purchase particular service/network elements. See our comments at NPRM Paragraph 88. The FCC recognizes[1] that there are differences in "dense" population and "less dense" population areas. GVNW's comments will point out the practical differences in the service areas and networks of large ILECs serving urban areas and small ILECs serving rural areas. In these comments, we use the terms "urban" and "rural" to designate the more and less densely populated areas, respectively.

GVNW believes that, if the ILECs are given the incentive of fair and adequate compensation for all services they provide, including network elements in an unbundled environment, the ILEC can serve as the "platform" for various service providers, including itself. The incentive to "squeeze" competitive LECs will not exist if the ILEC is allowed to earn compensatory revenues for all services. When this approach is used, there is no need for detailed rules. A framework for implementation of competition would prove sufficient.

[1] CC Docket 96-98, NPRM at Para. 133

In light of rapidly changing technology, and the many participants in the competitive local telecommunications business, detailed rules will require frequent updating and will, in the long run, probably be unenforceable. In addition, detailed rules and regulations will stifle introduction of new technology, much of which may not fit the existing rules. An example of this is the recent rise of the Internet, including I-phone, or voice communication over the Internet. The Internet has emerged as a major means of communication that does not fit any existing regulatory framework. The greater the detail in a regulation, the more difficult it will be to change to keep pace with new technology and business ventures. Detailed national standards, that do not recognize the differences in geographic areas and markets, and cannot be changed rapidly to meet changing conditions in the marketplace, will become unenforceable and will stifle the innovation that is one of the major benefits of competition.

Today the emerging competitive local telecommunications market is viewed from a perspective rooted in 100 years of regulated monopoly environment. What emerges in the competitive market may be very different from what is currently envisioned. It would be prudent to adopt as few high level regulations as possible rather than implement very detailed, nationwide regulation that may or may not reflect the emerging market. If the desired results are not obtained, specific adjustments can be made along the way. Excessive speed to a bad result is worse than slow progress to a good result.

NPRM Paragraph 45. All requirements on ILECs to unbundle their networks, and price network elements fairly, should be made reciprocal on all telecommunications providers to prevent *de facto* protected non-competitive service areas from emerging. In the CATV industry today,

where there are no protected service areas, CATV service areas often overlap. When new buildings or sub-developments are being built in areas served by more than one CATV company, the developer will often contract with one CATV company to provide the network for the entire project. Other CATV providers are often not allowed into the area by the developer/owner, especially if the project is on private property. Based on this precedent, such arrangements will probably emerge in telecommunications. This has already happened on a limited basis in shared tenant situations. There is no reason to expect that the ILEC will be the telecommunications provider that builds the network in all cases. Many networks will be built by non-incumbent LECs. Indeed, given the recent poor track record for service and inability to provide facilities to new construction by some large ILECs, developers may actively seek a different provider than the ILEC in some areas. If requirements concerning unbundling and pricing of network elements are not reciprocal between all communications providers, ILECs and other competitive LECs will be precluded from competing in some areas. Without reciprocal requirements to unbundle network elements and make them available at a non-discriminatory price, non-incumbent LECs will be able to effectively secure exclusive service areas, which is not in keeping with the intent of the 1996 Act.

NPRM Paragraph 47. The FCC should not prohibit any communications provider, including ILECs, from requiring non-disclosure agreements as a pre-requisite to negotiations between carriers. Non-disclosure agreements are routinely used in all lines of business to protect competitively sensitive information. Non-disclosure agreements are required routinely today of small ILECs by all communications providers, including RBOCs, IXCs, and CMRS providers.

Prohibiting the use of non-disclosure agreements will make all parties more reluctant to reveal information necessary to good faith negotiations. and will slow the process of reaching an agreement.

NPRM Paragraph 56. The most important consideration in any deliberations regarding technically feasible interconnection points should always be network reliability. There are three parties to any competitive arrangement using the ILECs network: the ILEC, the competitor. and most importantly, the customer. The customer's ability to obtain the most reliable service possible should not be compromised in order to provide for competition. All competitors have a vested interest in having the best service possible. and will try to achieve more reliable service than the other competitors. Allowing for unreliable interconnection would provide incentive for some competitors to degrade service of other competitors. Should this be allowed to happen, customers would view the entire competitive endeavor as a failure, as their service would be of poorer quality with competition than in the current regulated environment.

Properly chosen and administered points of interconnection, plus interconnection standards, based on the paramount requirement of preserving the integrity of the network, will allow for competition while preserving service quality. GVNW will discuss specific considerations in that portion of these comments that address the specific network elements.

NPRM Paragraph 57. When considering the proposed requirement that "all ILECs that employ similar network technology should be required to make interconnection at such (similar) point...", the FCC should consider the definition of "similar network". Similar networks would

employ similar plant, such as digital switches or fiber cable. However, if the definition is limited to overall types of plant only, the definition will be far too narrow. The FCC should also consider differences within types of plant, and differences in operational procedures, operational support systems, and level of mechanization when determining what constitutes "similar networks". While RBOCs and large ILECs in some cases use the same overall equipment and plant types as small ILECs, there are significant differences in technology, operations and support systems, that are not apparent at the macro level of "digital switching" or "fiber cable". Because of these differences, and the highly technical nature of the issues involved, the FCC should not order specific rules that are the same for large urban ILECs and small rural ILECs, or that contain such a level of detail that the rules cannot be adequately administered or changed to accommodate new technology.

The significant differences in large and small ILEC networks are:

Digital Switching:

The average switch size at large ILECs is approximately 12,000 lines per the AT&T *ex parte* submission[2]. At this size it becomes economical to deploy large switches. AT&T mentions the following large switches in its *ex parte* comments; Lucent, Nortel, Siemens, Ericcson, and AGCS.[3] In this submission, AT&T calls these "all the switch manufacturers". AT&T must not be aware that the small ILECs use different switches at a much lower number of lines per switch. At small ILEC service area sizes, it is not economical to deploy large type switches found in RBOC deployments. While some vendors (Lucent, AGCS) offer the same operational features, introduced on the same schedule, in all versions of their switching product,

[2] AT&T Submission, March 18, 1996 "Local Exchange Market Capital Investment"
[3] AT&T Submission, March 18, 1996 Page 1 of "Local Number Portability".

the main providers of switches to the small ILECs do not offer the same switch product for economical deployment in small and large sizes. Nortel offers the DMS 100 product for large applications and the DMS 10 in small applications. Siemens' switches in large applications is the EWSD product, while the Siemens DCO product is deployed at small ILECs. The small and large products from these vendors are not the same switch The small switches do not offer all the features of the large switch products, and usually offer new features a few years later than the large switches. For example, ISDN was made available on the DMS 100 and EWSD products before 1990. ISDN is, at this time, not available on the DMS 10, although there are plans to offer ISDN in 1996. Siemens has not provided any documentation indicating that ISDN will be available on the DCO at all. In addition, AT&T did not mention the Redcom, Mitel, and American Digital Switching products, probably because large ILECs do not use these switches. These switches are deployed in significant quantities in the small ILEC networks. These small digital switches are designed to be economical in rural deployments, and do not offer features found on the large switches. For example, the Redcom, a very small switch that is widely deployed in rural areas, does not offer ISDN, SS7, CLASS services, or AIN.

Requirements for operational features in digital switches should not be the same for small ILECs as for large LECs. Requiring similar features from all LECs based on the large ILEC networks would require uneconomical switch upgrades or replacements in large numbers of rural areas, adding significantly to the cost of the network for all competitors.

Vaults and Building vs. Cabinets for Loop Concentration

Both large and small ILECs use loop concentration equipment in their subscriber plant networks. Often, large and small ILECs use the same concentration equipment. However, due

to the size of deployments, the equipment is very often housed in a different manner in large and small ILECs. The large ILECs house much of their loop concentration equipment in buildings or controlled environment vaults (CEVs). These are typically large (10 by 20 feet or more) building-like structures that allow craft personnel to enter them to work on equipment. Equipment is added to racks, similar to central office equipment. A common power plant and environmental control system is used in the structure. Because the temperature and humidity are controlled, equipment designed to be deployed in central offices can be deployed in these enclosures. There may be adequate space to divide the area in the structure into areas reserved for the ILEC and various competitors, and to provide power and environmental control for the competitor's equipment.

In contrast, the small LECs deploy loop concentration equipment in cabinets. These metal boxes are built especially to house the loop concentration equipment in smaller deployment sizes, usually up to about 600 lines per site. The cabinets usually contain their own power supply, that is adequate to power only the loop concentration equipment in the cabinet. Limited environmental control in the form of cooling fans and heaters are provided. Environmentally hardened equipment that can tolerate greater extremes of heat, cold, and humidity is usually required in these applications. There is usually not adequate space in these cabinets to allow for multiple concentration systems. Thus, if the competitor wishes to connect to the small ILEC at a loop concentration point where the equipment is housed in a cabinet, the competitor will have to provide their own cabinet located near the ILEC cabinet. Collocation within the ILEC structure is not feasible. The FCC should not order collocation in the cabinet at loop concentration sites.

The FCC should not require waivers to collocation requirements on a site specific basis, as this will prove unduly burdensome to ILECs and State commissions that will be required to decide whether collocation is to be allowed. The FCC should allow the arbitration process in the 1996 Act to resolve differences between carriers in this area.

Central Office Buildings

Large ILECs typically deploy their central office switches in large buildings. In many urban areas, these buildings contained older electromechanical switching equipment that required substantially more space than the current digital switches. Space has been provided for a significant work force that was assigned to these buildings on a full time basis when electromechanical switching was deployed there. Thus, there may be significant space that can be leased to competitors. Small ILECs often use small buildings that, even when electromechanical switching was deployed, were not designed to house full time personnel. Space that was freed up when the electromechanical switch was converted to digital is often used for digital loop carrier equipment, fiber optic terminals, and other equipment. Thus, there is not nearly the amount of space available in these small, rural buildings. The FCC should consider ordering collocation in rural areas only when there is adequate space available.

The FCC should not require waivers to collocation requirements on a site specific basis, as this will prove unduly burdensome to ILECs and State commissions that will be required to decide whether collocation is to be allowed. The FCC should allow the arbitration process in the 1996 Act to resolve differences between carriers in this area.

Growth Increments

In large metropolitan environments, circuits are often ordered at the DS-1 and DS-3 level (24 or 672 voice circuits respectively). In urban environments, with large switches and high capacity fiber optic terminals, this is an economical way to provision equipment. The cost to add one DS-1 interface for trunking to a digital switch is about $3,000. Spread over the typical RBOC switch size of 12,000 access lines, this equates to $.25 investment per access line. With such a large subscriber base, usage will quickly grow to fill the added DS-1, resulting in economical utilization.

In a 750 line switch, the investment is $4.00 per access line. The smaller customer base usually does not generate adequate increased usage to fill the DS-1 in a short time. Thus, if the small, rural ILEC is required to respond to ordering criteria that are applicable to urban areas, the network will contain uneconomical excess capacity. The FCC should not place the same requirements on rural areas as on urban areas.

Deployment of Personnel

Large ILECs and small ILECs do not deploy personnel in the same manner, resulting in differing approaches to provisioning, maintenance, and security. Large ILECs typically deploy testing and provisioning personnel in large diagnostic or provisioning centers that may handle several states, or even an entire RBOC. Field maintenance personnel are deployed at or close to large switching centers in urban areas. Employees have specific work functions, and there are usually multiple personnel at a give location that can perform the same function. Security is provided by RBOC personnel at these locations.

In contrast, small ILECs do not find it economical to deploy personnel at small rural switching centers. Personnel may be centralized at the company headquarters, which is usually located at the largest switching center in the company. Due to geographic distance, it may take several hours for personnel to reach distant switching centers. In much of rural Alaska, switching centers are accessible by maintenance personnel only by aircraft. In the winter, access is dependent on weather. Small ILECs in Alaska address this by employing part time personnel with limited training in the rural villages to perform some maintenance tasks. When greater expertise is needed, personnel must be flown in from other locations, causing long response times. While this is an extreme case, many small ILECs in the Western US serve such geographically large areas that the farthest offices may be a 3 to 4 hour drive from the normal location of personnel. Security cannot be provided by on-site personnel. Thus, the ILEC will need to assure that competitor's personnel do not cause breaches of security. This can be accomplished by requiring some minimum level of proficiency of competitive personnel. See our comments at 72. For those installations and repairs that require a site visit, requiring similar maintenance response in rural areas as is required in an urban area will cause the ILEC to uneconomically add personnel to meet the urban criteria. The FCC should not order the same rules for rural areas as for urban areas.

Operational Procedures

The greatest difference between the large and small ILECs is the way they operate their networks. The large ILECs are highly computerized and mechanized. Most provisioning, testing, maintenance, and order processing in large ILECs is done by large computer based systems. These systems are economical on the large scale of an RBOC, where many manual

functions have been eliminated and costs greatly reduced by the use of these computerized systems. For example, when assigning switch line equipment to access lines on the scale of an RBOC (15 to 20 million access lines), the manual effort and paper records required to do this would be almost cost prohibitive. Sophisticated, costly computer programs, and the large mainframe computers to run the programs, can be justified by savings in personnel.

In a small ILEC, operational support functions are usually accomplished manually by one person or a few people each of whom have several other functional responsibilities. Costs of mechanized operational support systems are significant, often in the $500,000 range for minimal hardware and software. The costs are at this level because these systems are designed to operate at the scale of an RBOC, with 15 to 20 million access lines. When this cost is spread over the customer base of an RBOC, and savings in personnel costs are factored in, these systems are economical at RBOC scale. However, at a customer base of 5,000 access lines, such systems are not economical, and would add significantly to the cost of the network. Even if a computerized system were provided, because of the small total number of personnel in a small ILEC, personnel cannot be reduced sufficiently to justify the large investment. A parallel here is that, when it is required to add two numbers, it is more efficient to perform the function in one's head. If it is necessary to add 100 or 1,000 numbers, it becomes more efficient to program a computer to do the calculation.

Competitors that wish to access ILEC computers to perform provisioning, maintenance, or billing of their customers will find that small ILECs do not have such computers. Interface will usually be verbal or paper based. Detailed national requirements based on the RBOC urban

environment would require the small ILECs to uneconomically implement systems and procedures to interface with competitors.

Operational Support System Interfaces with other Companies

As mentioned above, large ILECs have deployed extensive computer based operational support systems (OSS) to perform provisioning, maintenance, diagnostic, and billing functions in their networks, while, due to economics, small ILECs use manual systems in many cases. The large ILECs have standardized interfaces for many of their operational support systems, such as Switching Control Center System (SCCS), for switch monitoring and maintenance, or Engineering and Administrative Data Acquisition System (EADAS) for obtaining engineering and traffic data for switches. If competitive LECs have access to RBOC information, they will probably do so through these interfaces. Thus, competitors will want to deploy their own OSS to be compatible with these interfaces.

The small ILECs do not have similar OSS arrangements, and thus cannot accommodate these RBOC standard interfaces. Competitive LECs will have to interface with small ILECs using small ILEC systems, which are usually manual, and are not standardized among the small ILECs. If the FCC were to require all ILECs to support the same interfaces as the RBOCs, the small ILECs would be required to uneconomically deploy OSSs that comply with the RBOC interface standards, increasing costs to customers, competitors, and possibly the Universal Service Support Fund.

In addition, since computer interfaces change rapidly with technology, the FCC should not adopt specific rules in this area. Requirement for a specific interface may stifle the

introduction of new, more efficient technology by requiring all carriers to comply with the old standard.

Switch Size and Network Cost

Due to the large geographic areas, and less densely populated areas, served by small ILECs, network configuration and costs are very different from those of the large ILECs. Schedule 1 provides information for a representative sample of 37 small rural ILECs primarily in the western United States. Access lines, switches, access lines per switch, plant in service (total investment), investment per access line, and switch type are identified for each company. Information is included for a representative sample of small ILECs in Alaska, Washington, Oregon, California, Nevada, Idaho, Utah, Montana, Wyoming, Colorado, New Mexico, Texas, North Dakota, Illinois and West Virginia. For comparison, the same information is provided for all REA Borrowers, and for the RBOCs. The RBOC information includes rural areas served by the RBOCs, and RBOC investment in operator systems, toll switches, and SS7 network elements such as STPs and SCPs, that are not usually deployed by small ILECs. Thus, the differences between urban and rural areas are actually somewhat greater than this comparison shows.

Average access lines per switch size for RBOCs is over 21 times greater than for the sample of small ILECs. Only one ILEC in the sample has a switch size that approaches the average RBOC switch size, most are significantly smaller.

Access lines per switch can be used to approximate overall network configuration. A large number of access lines per switch indicates a high population density in the area served by the switch. Conversely, a small number of access lines per switch indicates a rural area, with

sparse population. Loop and trunk plant construction will also reflect the differences in population density.

There is not a great difference between the average access lines per switch among RBOCs. Thus, there should be no significant reason for the RBOCs to operate their networks differently, resulting in a somewhat homogenous approach to network provisioning and operation among the RBOCs. In contrast, there is a great difference in the lines per switch among small ILECs, resulting in different approaches to switch and network provisioning and operation, not only between the RBOCs and the small ILECs, but also among small ILECs. Note that the largest small ILEC in the sample in Schedule 1 has 76 times the number of access lines as the smallest. The homogeneous world competitors will experience when interconnecting with the RBOCs does not exist among the small ILECs. Small ILECs operate differently from RBOCs and differently from each other. If the FCC were to require that the small ILECs conform to the same regulations as the RBOCs, the small ILECs will be forced into uneconomical deployment of network components and operational procedures and systems that will add to the overall cost of the network impacting both the ILEC customers and competitors.

There are also significant differences in investment per access line between the small ILECs and the RBOCs. This reflects the differences in the urban service areas of the RBOCs and rural service areas of small ILECs. Total plant investment per access line for small ILECs is over twice that of the RBOCs. Only three small ILECs approach the RBOC level of investment per access line. There are also significant differences in network investment per access line among the small ILECs, reflecting areas served. For the small ILEC in the sample with the highest investment per access line, it should be pointed out that this LEC serves 934 access lines

in a geographic service area that is larger than the State of Maryland. A significant number of small ILECs in the sample serve geographic areas that are larger than the smaller Eastern states. Even with extensive use of wireless loop technology, costs to serve these areas are extremely high. To require ILECs in these sparsely populated areas to meet the same requirements as are imposed on a LEC serving an urban area would result in very uneconomic deployment of network facilities, personnel, and operational systems, adding to network costs for all customers of the ILEC, including competitors.

NPRM Paragraph 61. Uniform national guidelines and explicit standards will not reflect the actual conditions encountered in the ILEC networks, as discussed in 57 above. Even uniform standards on a statewide basis will not encompass sufficiently small geographic areas, and will not reflect the differences in population density found within a single state. See Schedule 2 If all ILECs are required to conform to uniform national or statewide standards, many ILECs will be forced to implement significant, uneconomical network upgrades only to conform to the standards. This will raise the cost of service to all customers of the ILEC, both ILEC end users and competitors that purchase network elements from the ILEC, and will not increase the quality of service to the ILECs customers.

NPRM Paragraph 62. For any facilities that the ILEC builds specifically for interconnection with a competitor, that are not also used to serve the ILECs customers, the ILEC should be able to obtain aid to construction (earnest money), that would be applied to the competitors cost of interconnection. Interconnection costs can be significant, as when a collocation request requires

a building addition. If the ILEC is not permitted to refuse to connect, a requirement for aid to construction would protect the ILECs customers if a competitor is not able to actually interconnect with the ILEC and purchase network elements. A requirement for earnest money will deter spurious requests from parties who may not have any intention of entering the market in a specific area at that time.

NPRM Paragraph 71 - The Commission seeks comment on whether vaults and other similar structures in rights-of-way should be deemed LEC premises where physical collocation should be allowed. GVNW offers that it is clear that cabinets located in such rights-of-way, which might be considered similar structures, are clearly not "buildings", cannot be considered as "premises", and therefore are not appropriate locations in which the LECs should be required to offer physical collocation.

NPRM Paragraph 72. As stated earlier, the integrity of the network should never be sacrificed to allow competition. This is unfair to customers, and will ultimately result in the overall failure of local exchange competition should the quality of service degrade significantly. In collocation situations, the major threat to network integrity is poorly trained, incompetent personnel working on the premises. The ILEC should be able to set minimum training and proficiency standards for all personnel working on the ILECs premises, and require that competitors produce proof of that training. Proof could include a certificate indicating adequate completion of an applicable training course at a recognized instructional facility, such as a school offered by the appropriate equipment manufacturer(s). This will not prove burdensome on competitors, as the competitor will require that its employees be trained adequately to operate and maintain its own facilities. Appropriate training and experience are currently criteria for hiring in the telecommunications

industry, and should be carried through to all participants in a competitive local exchange environment.

If the ILEC discovers that a competitor's personnel are incompetent in a collocation situation, the ILEC should have the right to require that the competitor remove the offending employee(s) from the premises until competence can be demonstrated. This is currently the established industry practice when equipment manufacturers have installation personnel on LEC or IXC premises, or where personnel from more than one company work on the same premises. Similarly, all competitive LECs should have the same privilege to ask that incompetent personnel be removed from their facilities.

NPRM Paragraph 79. As discussed in our comments at 57, it would be very uneconomic to require all ILECs to meet national standards for provisioning and service intervals and technical standards due to the differences in technology and operations among the ILECs. Such regulations would be economically burdensome in rural areas.

NPRM Paragraph 87. Network elements should be those portions of the network between points where interconnection access is technically feasible. The existing network has several existing natural interconnect points. These include the point where line circuits in a switch or concentrator are connected to cable pairs, the point where trunk facilities are connected to the switch, and the point where signaling links are connected to the SS7 network.

Network elements should be defined by their function, i.e., loop provides transport from the switch/loop concentrator to the customer premises. If a loop is defined by a specific

technology, the definition will soon become obsolete, and may deter introduction of new technology if the definitions are not adequately flexible to adapt to the changes in technology. For example, ILEC loops are almost exclusively twisted pair copper at present, but may include coax cable, wireless, or fiber to the customer premises in the near future.

Interconnect points should be considered technically feasible when the following criteria are met:

a.) The interconnect point is a normal ILEC access point for provisioning of service to its customers. For example, at the distributing frame in a switching center or distributing panel in a loop concentrator, the ILEC routinely assigns line equipment and cable pairs to customers. However, the ILEC does not routinely assign cable pairs by changing splices at cable splice points. Thus, the distributing frame would be an interconnect point, whereas cable splices would not be interconnect points unless specifically configured for this purpose. See our comments at 97. For coax, fiber, or wireless plant, the point where each customer receives their channel assignment for discrete communication could be used as the interconnect point.

b.) The interconnect point should be a point where the ILEC maintains assignment records. Without assignment records, it would not be feasible to administer facilities for provisioning or maintenance.

c.) The interconnect point should be a point where ILEC personnel access facilities for interconnecting ILEC facilities.

d.) Cross connecting the facility at an interconnect point does not expose the network to undue damage. For example, if a trunk side DS-1 facility is cross connected incorrectly

at the DSX Cross Connect Panel, that DS-1 will not work, but other DS-1's will continue to function. However, if a fiber optic terminal serving multiple DS-1s were caused to fail, many DS-1 facilities providing service to the ILEC and multiple competitors would be adversely affected. Thus, the DSX Cross Connect Panel should be an interconnection point, whereas interconnection achieved by a competitor plugging its circuit cards into the ILEC fiber optic terminal should not be allowed as an interconnect point.

e.) Where all parties involved, the ILEC and the competitors, can demonstrate technical proficiency of personnel assigned to work at the interconnect point. For example, technical proficiency working at distributing frames is common in the industry, and most small ILEC distributing frames function similarly Many telecommunications industry employees could demonstrate proficiency on distributing frames. However, special skills, not widely mastered, are required to access a DS-1 span between a switch and a loop concentrator. Thus, the distributing frame should be an interconnect point, while the DS-1 spans between the switch and the loop concentrator should not be an interconnect point.

A recommended definition of network elements and interconnect points is shown in the table on the next page:

Network Element	Interconnection Point(s)	Interconnect Standard
Local Loop	Central Office Main Distributing Frame or Loop Concentrator Distributing Frame (Panel)	Service standards currently established by FCC and States, and manufacturer's specifications.
Local Switch - Line Side	Central Office Main Distributing Frame or Loop Concentrator Distributing Frame (Panel)	Service standards currently established by FCC and States, and manufacturer's specifications.
Local Switch - Trunk Side	DSX Cross Connect Panel or Digital Cross Connect (DCS) Port	DS-1 Industry Standards, Bellcore specifications, and manufacturer's specifications
Access Tandem	DSX Cross Connect Panel or Digital Cross Connect (DCS) Port	DS-1 Industry Standards, Bellcore specifications, and manufacturer's specifications
Dedicated Transport	DSX Cross Connect Panel or Digital Cross Connect (DCS) Port	DS-1 Industry Standards, Bellcore specifications, and manufacturer's specifications
Common Transport	DSX Cross Connect Panel or Digital Cross Connect (DCS) Port	DS-1 Industry Standards, Bellcore specifications, and manufacturer's specifications
Signaling Link	Point where 56 Kb Channel Unit in cross connected to SS7 Modem	CCITT 7 and Bellcore SS7 specifications and equipment manufacturer's standards, plus Gateway Screening functionality between SS7 networks
STP	STP Port at point where 56 Kb Channel Unit in cross connected to SS7 Modem	CCITT 7 and Bellcore SS7 specifications and equipment manufacturer's standards, plus Gateway Screening functionality between SS7 networks
SCP	SCP Port at point where 56 Kb Channel Unit in cross connected to SS7 Modem	CCITT 7 and Bellcore SS7 specifications and equipment manufacturer's standards, plus Gateway Screening functionality between SS7 networks

Specific concerns with each element will be addressed in the appropriate paragraphs following.

NPRM Paragraph 88. Unbundling should be required of small ILECs only when it is 1.) technically feasible, 2.) specifically requested by a competitor, and 3.) economically feasible for small ILECs.

Technical feasibility is discussed in our comments in NPRM Paragraph 87 above.

In many rural areas, competitors may not want to purchase all unbundled network elements initially. We believe that, in rural areas, most competitors initially will want to resell a complete package of local service because the competitors do not have their own facilities in rural areas at this time. As competitors build their own facilities in rural areas in the future, they may wish to purchase some unbundled network elements, but not all. Ultimately, wireline competitors will probably want to purchase only local loops, but not switching or transport, because, in rural areas, the high cost element to reach the customer for competitive wireline carriers would be the local loop. Purchase would probably be more economical than construction for the wireline competitor. Conversely, wireless carriers might want to purchase trunk connections to an urban area, but not local loops. Different ILECs will be asked to provide different network elements. Since there is a real and significant cost associated with unbundling, requiring all ILECs to unbundle all elements before there is a demand for the service would be uneconomical, and add to the cost of the network for customers and competitors.

As mentioned in the preceding paragraph, there are very real costs of unbundling network elements and providing for network interconnection. These costs include modifications to