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January 17, 2001

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Blanca S. Bayo, Director
Division of Records and Reporting
Betty Easley Conference Center
4075 Esplanade Way
Tallahassee, Florida 32399-0870

Re: Docket No.: 001275-TP

Dear Ms. Bayo:

On behalf of Network Telephone Corporation, enclosed for filing and distribution are the original and 15 copies of the following:

- **Direct Testimony and Exhibits of Arvil Fowler**
- ***Direct Testimony and Exhibits of Brent McMahan***

Please acknowledge receipt of the above on the extra copy of each and return the stamped copies to me. Thank you for your assistance.

Yours truly,

Joe A. McGlothlin

Joseph A. McGlothlin

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BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Complaint of Network Telephone Corporation against Sprint - Florida, Inc.
_____/

Docket No.: 001275-TP

PREFILED DIRECT TESTIMONY

AND EXHIBITS OF

ARVIL FOWLER

ON BEHALF OF

NETWORK TELEPHONE CORPORATION

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

PREFILED DIRECT TESTIMONY OF

ARVIL FOWLER

ON BEHALF OF NETWORK TELEPHONE CORPORATION

DOCKET NO. 001275-TP

Q: Please state your name and address.

A. My name is Arvil Fowler. My address is 815 S. Palafox Street, Pensacola, Florida.

Q. By whom are you employed, and in what capacity?

A. I am employed by Network Telephone Corporation as its Executive Vice President and Chief Technical Officer.

Q. Please describe your educational background and job experience.

A. I received a B.S. degree in Civil Engineering from Louisiana Tech University. For sixteen years I was employed by Long Distance Savers (LDS), serving as its Vice President for Operations and Engineering and Chief Operations Officer. While with LDS, I was responsible for overseeing the development of a switching and transmission infrastructure for its five state system. In 1998, I became Vice President of Network Services for Century Tel in Monroe, Louisiana. I joined Network Telephone Corporation in late 1999. In all, I have more than 20 years of experience in the technical network aspects of the telecommunications industry.

Q. What are your responsibilities and duties as CTO of Network Telephone?

A. As CTO, I am responsible for Network Telephone's technical lab, all product evaluations, and the underlying support network using ATM switches, IP, and class 4 switches. I have

been the senior manager responsible for build-out of our local network, including the PathStar installations.

Q. What is the purpose of your testimony?

A. First, I will describe the PathStar Access Server ("PathStar"). The PathStar is an integrated, multifunctional piece of network equipment that is designed, manufactured, and marketed by Lucent Technologies. I will place particular emphasis on the manner in which the components of the PathStar achieve access to an ILEC's unbundled network elements. I will then describe the manner in which Network Telephone configures its network. I will demonstrate that the Data Shelf component of the PathStar, which Sprint (unlike BellSouth and Verizon) refuses to allow Network Telephone to collocate, is necessary to the accessing and termination of certain ILEC unbundled network elements. I will then demonstrate that the switching functionality integrated in this component cannot be segregated from the component that is essential to accessing unbundled network elements. I will explain why collocating the Data Shelf is essential to Network Telephone's ability to compete in the area in which Sprint serves as the ILEC.

Q. Please describe your association with the PathStar that enables you to provide information regarding the manner in which the PathStar accesses unbundled network elements.

A. I was closely involved on behalf of Network Telephone with the evaluation and selection of the PathStar equipment. I have worked closely with the manufacturer, Lucent Technologies, in the acquisition and placement of the equipment. I have participated in the design and build-out of Network Telephone's network. My responsibilities have required me to study in detail the PathStar's design, functions, and capabilities. I have overall responsibility for

our company's network, and the PathStar Access Server is the centerpiece of that network. Accordingly, I work with various aspects of the PathStar on a daily basis. We currently have thirteen PathStar Access Servers (including Data Shelves) installed in ILEC collocations across the Southeast, of which four are in Florida. Twenty additional locations are under construction. As a result, I have developed substantial expertise with the equipment. My testimony is based on my personal knowledge gained from extensive hands-on experience with the equipment.

Q. Are you sponsoring any exhibits to your testimony?

A. Yes, I have two exhibits. The first, Exhibit ___ (AF-1), is a letter from J.H. Simester, Manager of The PathStar Product Development for Lucent Technologies, to Network Telephone's Counsel dated August 30, 2000. In the letter, which was attached as an exhibit to Network Telephone's complaint, Mr. Simester describes the essential features, configuration, and capabilities of the PathStar Access Server. This exhibit includes a diagram of the PathStar Access Server prepared by its manufacturer to which I will refer in my testimony.

The second exhibit, Exhibit____(AF-2), is a diagram of the typical layout of Network Telephone's network.

Q. How did Network Telephone come to acquire the PathStar Access Server?

A. As Network Telephone witness Brent McMahan also mentions, the objective of Network Telephone is to provide a technology-rich network that extends, not only to large urban areas, but also to smaller "Tier 2 " and "Tier 3" communities. To be competitive in that endeavor, we must minimize the costs of building and operating such a network. Our solution takes advantage of the economies and efficiencies present in next-generation

equipment designed for the ALEC environment.

Q. Please explain what you mean by "next-generation equipment."

A. When the Telecommunications Act of 1996 was passed, the only network equipment available was that which had been designed for ILECs. Early ALEC entrants had to use such "legacy" equipment, even though much of it was ill-suited for their needs. I believe strongly that the lack of equipment designed with the ALECs' needs in mind, and the less-than optimal economics associated with the use of such equipment, has contributed to the difficulty that ALECs generally have experienced in competing with the incumbents. However, equipment manufacturers are now beginning to address ALECs' needs with a new generation of equipment that is tailored to the ALEC environment. The PathStar Access Server manufactured by Lucent Technologies is a prime example of such recent developments. It is the result of an initiative by Lucent to design equipment specific to the ALEC environment that will enable ALECs to achieve efficiencies and economies in their networks. This enables ALECs to lower their costs and allows them to be more competitive in their markets. The PathStar achieves this goal by integrating several important functions in one compact package–a package that costs less and requires less space than the several individual components it is designed to replace.

Q. What functions does the PathStar perform?

A. The PathStar provides access to an incumbent local exchange company's unbundled network elements. It is also designed to serve as a digital subscriber line access multiplexer (DSLAM), an edge router, an IP gateway, and a Class 5 switch for POTS telephone service.

Q. Please provide a physical description of the PathStar Access Server (or "PathStar").

A. The PathStar consists of two separately housed components or "shelves" called the "Access Shelf" and the "Data Shelf." Together, the components can fit in a single cabinet or rack that is 19" wide and 24" deep. The shelves are designed so that they can perform their respective functions whether they are in close proximity to each other, or whether they are physically separated.

Q. What are the several functionalities of the Access Shelf within the PathStar?

A. This is illustrated in the diagram attached as part of Exhibit ___ (AF-1). The Access Shelf accesses and receives the ILEC's unbundled DSO loops (used to provide POTS services). The Access Shelf also performs circuit-to-packet conversion and ring generation functions.

Q. What is the significance of the ability of the Access Shelf to perform circuit-to-packet conversions?

A. Our network is a packet-based system. This means that all voice traffic and data are converted into a digital format and sent over the same path. By comparison, the networks of ILECs and some other ALECs are characterized by separate network facilities, including separate loops or paths, for data and voice traffic. The use of a single path for both voice and data constitutes one of the major economies achievable with modern, next-generation network equipment. It enables Network Telephone to minimize the cost of installing a modern network capable of delivering traditional and advanced services.

Q. Can one assume, based on its name, that the "Access Shelf" performs all of the functions necessary to access all of the ILEC's unbundled loops?

A. No. As Exhibit ___ (AF-2) indicates, the Data Shelf is designed to receive and terminate unbundled T1 loops, PRI loops, high speed data loops, and PSTN. In addition, the Data

Shelf integrates other functionalities, including Class 5 switching and call routing.

Q. What is a T1 loop, and for what service is it employed by an ALEC?

A. The T1 nomenclature describes a loop having a bandwidth of 1.544 mbps. A common application of a T1 loop would be to serve a business customer that employs a PBX system. Such a customer could not be served by any of the loops that are accessed by the PathStar Access Shelf; a Data Shelf is therefore essential to the ability to provision such service.

Q. Is the T1 loop considered to be an unbundled network element?

A. Yes, definitely.

Q. What are PRI loops, and which services does an ALEC provide with them?

A. A PRI or Primary Rate Interface, is one of the two types of ISDN (Integrated Services Digital Network) services that are currently available. ISDN services bring the features of PBX systems and high speed data transfer capability to the telephone network. A PRI consists of 23 B (bearer) channels and one D (data) channel. Like the T1, a common application of the PRI loop would be to serve a business customer that employs a PBX (Private Branch Exchange) system. Such a customer could not be served by any of the loops that are accessed by the Access Shelf; a Data Shelf is therefore essential to the ability to provision such service.

Q. Are PRI loops considered to be unbundled network elements?

A. Yes.

Q. Is it possible to access any of the T1 loops or PRI loops that you have mentioned with the Access Shelf rather than with the Data Shelf of the PathStar?

A. No. Again, only the Data Shelf component of the PathStar can accomplish these functions. My answer, which is based on personal knowledge, is reinforced by the statement of Lucent

Technologies' J.H. Simester to Network Telephone's counsel, attached as Exhibit ___(AF-1).

Q. Is it possible to segregate the switching functionality of the Data Shelf from the portion of the Data Shelf that is used to access unbundled network elements?

A. No. These functionalities are truly, fully integrated in the Data Shelf. There is no way to separate them. This observation was buttressed by the letter from Lucent's Senior Manager of PathStar Product Management. Mr. Simester stated "The Data Shelf contains the functionality that enables PathStar to operate as a core switch for other remote locations. Because of the integrated design and construction of the Data Shelf, the function of providing access to the ILEC's unbundled T1, PRI, and high speed data loops identified above cannot be separated from the other physical components or the other functionalities of the Data Shelf." See pages 1-2 of Exhibit _____ (AF-1).

Q. How does Network Telephone take advantage of the PathStar's design?

A. The PathStar provides the full scope of access to UNEs that an ALEC requires, while minimizing the amount of equipment that the ALEC must collocate to realize that degree of access. Network Telephone has taken advantage of this specialization in the configuration of its network.

Q. Please explain.

A. I have prepared a diagram, attached as Exhibit __(AF-2), to illustrate the concept. Our network design contemplates that we will place a PathStar Access Shelf in each ILEC central office that connects a Network Telephone customer. However, a strategically located Data Shelf can receive, aggregate, and process customer needs for service communicated from several Access Shelves in several central offices. Further, not every ILEC central office

reaches a Network Telephone customer that wants or needs a service that requires a T1 or PRI loop. The fact that the functionality used to access these UNEs resides in the Data Shelf enables Network Telephone to place the Data Shelf in selectively and strategically chosen central offices rather than on an across-the-board basis, thereby ensuring that the deployment of network facilities will be a continuing function of customer demand and market analysis. This feature in turn enables Network Telephone to conserve capital and minimize the cost of installing the network, all of which enhance Network Telephone's ability to compete. Incidentally, it also reduces the total need for collocation space in the facilities of the ILEC. However, the configuration is dependent on the ability to collocate both the Access Shelf and the Data Shelf–and of course upon the ability to employ the switching functionality embedded in the integrated Data Shelf.

Q. Is it possible to access the T1 UNEs without collocating the Data Shelf?

A. It is theoretically possible only in the sense that it is theoretically possible to cross-connect most any equipment that accesses UNEs from a remote location if one ignores considerations of cost and feasibility. The Data Shelf is no different than other network equipment that is subject to the collocation obligation in that regard. Having demonstrated that the Data Shelf is necessary to access UNEs, and therefore entitled to collocation, I believe any other scenario is irrelevant. However, I will address the question of an alternative to make a point regarding the importance of collocation generally to the landscape created by the 1996 Act.

Q. Please continue.

A. The only theoretical alternative to collocating the Data Shelf on the premises of the ILEC would be to rent or construct "office space" for the Data Shelf. Such space would have to be environmentally controlled (complete with HVAC) and secured. This would be an

extreme and absurd reversal of the principle of economies of scale: The cost of providing and maintaining such elaborate space separately to accommodate a component as small (approximately two feet by two feet) as the Data Shelf would increase Network Telephone's cost per access line dramatically. By analogy, it would be like building the infrastructure for a hotel–complete with air conditioning, dining room, and swimming pool–to accommodate only one guest room. The charge per guest per night necessary to recoup the costs of the infrastructure would likely render it impossible for the hotel to rent the room. In addition to the cost of conditioned and secured space, in order to access the needed UNEs Network Telephone would be required to provide broadband transport capability between the central office and the "Data Shelf hotel." In the case of multiple customers that require access to UNEs in a central office via the Data Shelf, this transport need would quickly require the bandwidth of a DS3 loop, which would increase the cost of transport by several orders of magnitude. The inability to collocate the Data Shelf on Sprint's premises would increase our capital costs by approximately $750,000 per Data Shelf site. (This figure represents the initial outlay; it does not include ongoing costs of operation and maintenance.) This cost would so defeat the efficiencies that are the objective of the design of the PathStar and of our network that we simply would not be able to compete. It is for this very reason that, as Mr. McMahan states, Network Telephone has placed its plan to enter certain markets on hold until our ability to collocate both shelves of the PathStar is enforced. I believe this example illustrates why the 1996 Act imposed an obligation on ILECs to permit collocation of equipment necessary to interconnect and to access UNEs.

Q. Do you have any additional comments?

A. Yes. I have described the effect of the evolving design of ALECs' network equipment

primarily from the perspective of the ALEC. However, from the point of view of the ILEC, the same developments mean equipment that–compared to legacy equipment–requires far less space, uses significantly less power, and generates less heat. Therefore, while Sprint's resistance to our applications may be explained by competitive considerations, it is not supported by any reasons relating to the relative burdens of collocating the Data Shelf as opposed to other network equipment.

Q. Does that complete your testimony?

A. Yes.

Lucent Technologies
Bell Labs Innovations

J. H. Simester
Senior Manager
PathStar Product Management
InterNetworking Systems

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simester@lucent.com

August 30, 2000

Mr. Brent McMahan
Vice President
Regulatory and Governmental Affairs
Network Telephone Corporation
815 South Palafox Street
Pensacola, FL 32501

Dear Mr. McMahan:

I am the Product Manager for Lucent Technologies' PathStar Access Server, and as such have personal knowledge of the physical design, technical capabilities, and functional attributes of the product.

Lucent Technologies has designed the PathStar Access Server to perform several important functions in an alternative local exchange company's (ALEC) network. The PathStar Access Server combines several functionalities in a compact, integrated package. The PathStar provides access to an incumbent local exchange company's (ILEC) unbundled network elements, and also serves as a digital subscriber line access multiplexer (DSLAM), an edge router, an IP gateway, and a Class 5 switch for POTS telephony.

The PathStar Access Server fits in a cabinet or mounts on a rack that is 19" wide and 24" deep.

The PathStar consists of two separately housed components or "shelves": the "Access Shelf" and the "Data Shelf." The function of accomplishing access to an ILEC's unbundled network elements is divided between the two shelves (see attached figure, PathStar System Components).

The PathStar's Access Shelf is designed to access and receive from the ILEC terminating, unbundled DS0 loops employed by the ALEC in providing POTS services and unbundled copper loops used by the ALEC in providing ADSL service. Because of the integrated design and construction of the Access Shelf, the functionality of gaining access to the ILEC's DSO and unbundled copper loops cannot be separated from the other physical components or the other functionalities of the Access Shelf. Further, the separate Data Shelf is incapable of accessing the ILEC's unbundled DSO loops and unbundled copper loops, as the design of PathStar has allocated that function to the Access Shelf. Since the interfaces that the PathStar's Access Shelf is designed to access are typically terminated in the ILEC's central office, it would be technically infeasible for the PathStar to provide collocation access to those unbundled network elements for voice and data services without placing the Access Shelf in the collocation environment.

The PathStar's Data Shelf is designed to access and receive from the ILEC terminating, unbundled UNEs such as T1 loops and Primary Rate Interfaces (PRI loops). It also accommodates high speed data interfaces such as DS3/OC3 loops for ATM, and 10/100Mb

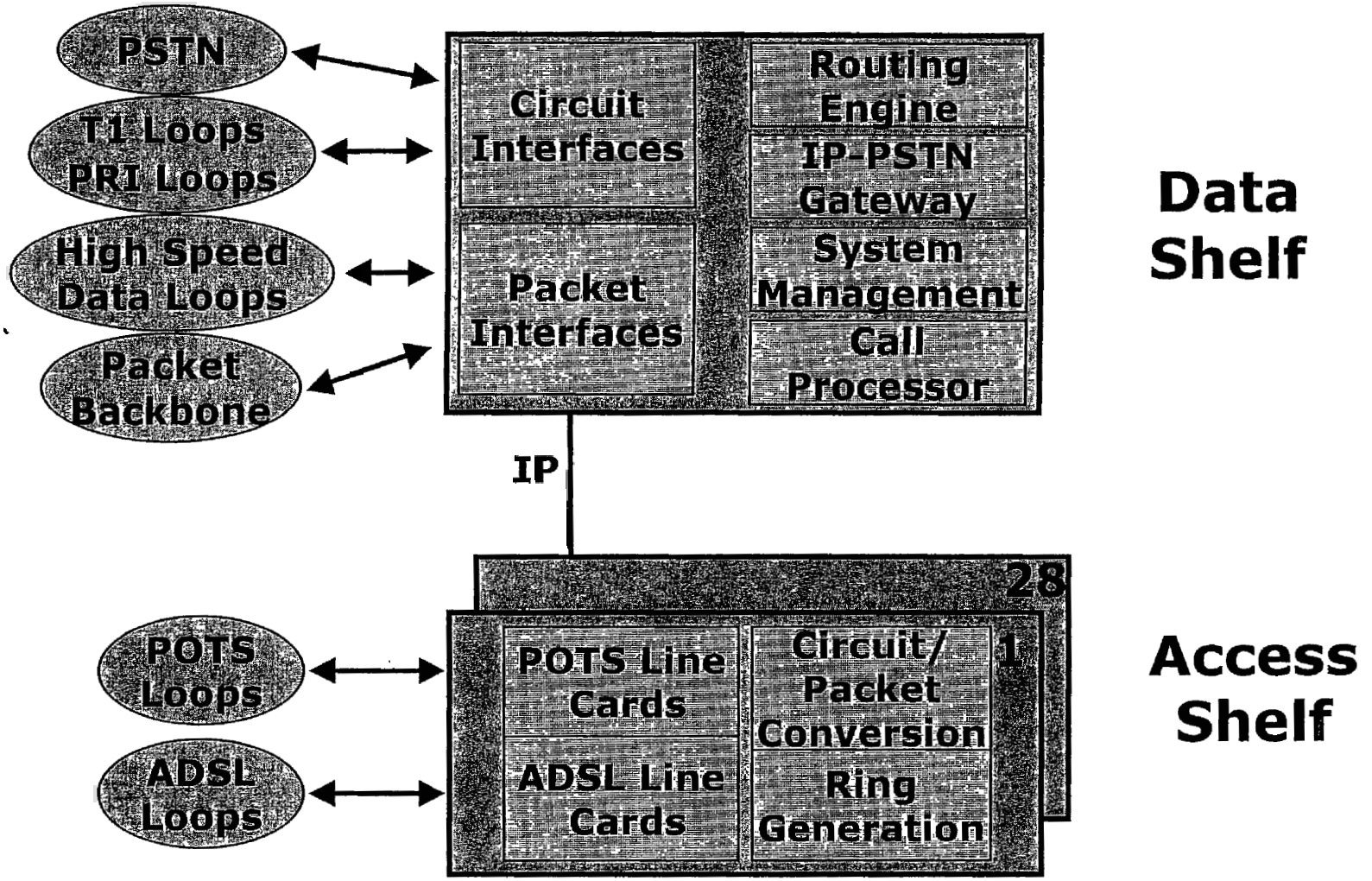
Ethernet connections. The Data Shelf also provides call routing and processing functions. It serves as an IP gateway and as an edge router. The Data Shelf contains the functionality that enables PathStar to operate as a core switch for other remote locations. Because of the integrated design and construction of the Data Shelf, the function of providing access to the ILEC's unbundled T1, PRI, and high speed data loops identified above cannot be separated from the other physical components or the other functionalities of the Data Shelf. Further, the separate Access Shelf is incapable of accessing the ILEC's unbundled T1, PRI, and high speed data loops, as the design of the PathStar has allocated that function to the Data Shelf. Since the T1, PRI, and high speed data interfaces are typically terminated in the ILEC's central office, it would be technically infeasible for PathStar to provide collocation access to those unbundled network elements for voice and data services without placing the Data Shelf in the collocation environment.

Sincerely,

Attachment – PathStar System Components

PathStar System Components

Lucent Technologies
Bell Labs Innovations



CERTIFICATE OF SERVICE

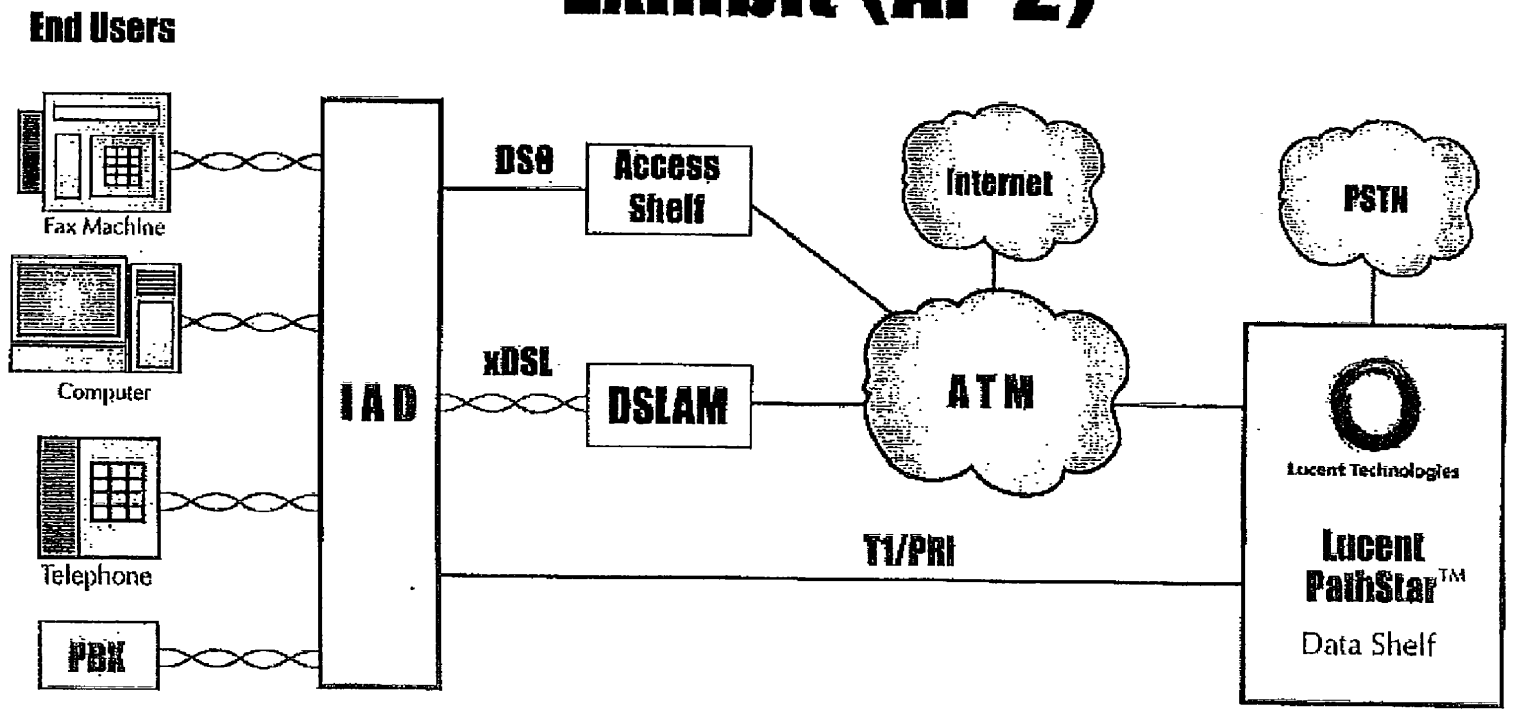
I HEREBY CERTIFY that a true and correct copy of the Prefiled Direct Testimony and Exhibits of Arvil Fowler on behalf of Network Telephone Corporation has been furnished by hand delivery(*) and U.S. mail Wednesday, January 17, 2001, to:

*Lee Fordham
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, Florida 32399-0850

Charles J. Rehwinkel
Sprint-Florida, Incorporated
1313 Blair Stone Road
Tallahassee, Florida 32301

Joseph A. McGlothlin

Exhibit (AF-2)



Florida Public Service Commission Docket No. 001277-TP
Network Telephone Corporation
Exhibit ____(AF-2)