The Florida Senate

Interim Project Report 2002-146 *October 2001*

Committee on Regulated Industries

Senator Walter "Skip" Campbell, Jr., Chairman

UNIVERSAL PROVISION OF DSL SERVICES IN FLORIDA

SUMMARY

Staff for the Committee on Regulated Industries conducted research to determine whether legislation should be filed to require the provision of digital subscriber line (DSL) service through a universal service fund, or whether some other mechanism to encourage deployment of high-speed and advanced internet services is warranted. Staff examined to what extent the Florida Public Service Commission (PSC) has jurisdiction to regulate DSL and, more importantly, examined whether consumers have a legitimate need for DSL. Staff's research indicates that PSC jurisdiction is not settled, because the PSC has yet to make a finding on that issue. Staff's research also indicates that a legitimate need for DSL does not exist, based upon the limited benefit to most users, low demand, high cost of deployment, and the availability of service through alternative technologies. Staff's report also indicates that many consumers in low-income and rural areas have access to advanced services offered in public schools and libraries. Therefore, committee staff recommends that the Committee on Regulated Industries not file legislation to require a universal service fund or other mechanism for the provision of DSL.

BACKGROUND

Section 706(c)(1) of the Federal Telecommunications Act of 1996 (Act), defines the term "advanced telecommunications capability" as high-speed, switched, broadband telecommunications capability that enables users to originate and receive high-quality voice, data, and video telecommunications using any technology. In Florida, those technologies include wireline services such as digital subscriber line (DSL), cable modem and wireless satellite. Section 706(a) of the Act directs the Federal Communications Commission (FCC) and state commissions to encourage deployment of advanced telecommunications capability on a reasonable and timely basis to all Americans.

Section 706(b) of the Act directs the FCC to conduct inquiries to determine whether such deployment is occurring in a reasonable and timely fashion, and to take immediate action to accelerate deployment if the FCC's determination is negative.

The FCC has focused its inquiries on high-speed and advanced services. The FCC defines as "high-speed" those services that provide an internet subscriber with transmission at a speed in excess of 200 kilobits per second (kbps) in one direction. The FCC includes the term "advanced services" under high-speed services. It defines "advanced services" as services that provide the subscriber with transmission speed in excess of 200 kbps in both directions.[1]

The FCC has determined that high-speed and advanced services are being deployed in a reasonable and timely fashion.[2] Therefore, the FCC has taken no direct action to encourage deployment.

Section 254(b)(6) of the Act, provides for discounts on advanced services to schools, libraries, and health care providers through proceeds from the Federal Universal Service Fund.[3] Further, Section 251(c)(3) of the Act,

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[1]High–Speed Services for Internet Access: Subscribership as of December 31, 2000, Federal Communications Commission (August 2001).

[2]FCC 00-290, In the Matter of Inquiry Concerning Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, CC Docket No. 98-146 (August 21, 2000).

[3] The Federal Universal Service Fund is generated through contributions from all telecommunications carriers that provide service between states, including long distance and local telephone companies, wireless telephone companies, paging companies, and pay

requires that incumbent local exchange carriers provide nondiscriminatory access to unbundled network elements such as DSL loops.

Florida law provides no specific mechanism for encouraging deployment of either high-speed or advanced services; therefore, committee staff conducted research to determine whether DSL service should be provided through a universal service fund or whether some other mechanism to encourage deployment is warranted.

METHODOLOGY

Committee staff provided questionnaires to high-speed and advanced services providers regarding existing infrastructure, deployment, cost, and consumer demand. Staff obtained data from the PSC, reports from the FCC, other federal agencies, and independent research groups regarding deployment and trends in internet use at the state and federal level. Staff obtained information from the U.S. Census Bureau and the Florida Legislature's Office of Economic and Demographic Research regarding Florida's rural and urban populations. Staff obtained information from the Council for Education Policy Research and Improvement and the State Library of Florida regarding access in Florida's public schools and libraries. Staff contacted county officials regarding their access to high-speed and advanced services. Finally, staff obtained information from the National Conference of State Legislatures on proposed legislation in other jurisdictions.

FINDINGS

Universal Service

Committee staff researched to what extent the PSC has jurisdiction to regulate DSL service. More specifically, committee staff researched whether consumers have a legitimate need for DSL or for any form of high-speed or advanced services. In determining the need for DSL, staff considered factors such as technical feasibility, cost of deployment, demand, and benefit to consumers. Finally, staff researched to what extent high-speed and advanced services are currently available in Florida, and to what extent viable alternatives exist.

Jurisdiction

On October 30, 1998, the FCC issued Order No. 98-292 in CC Docket No. 98-97, approving GTE's ADSL tariff.[4] In approving the tariff, the FCC ruled that GTE's service was interstate in nature and that GTE had correctly filed at the federal level. The FCC noted, however, that should GTE or any other incumbent local exchange company offer DSL service that was intrastate in nature, the service should be tariffed at the state level.[5]

On January 25, 2001, PSC staff filed a recommendation requesting that the PSC order BellSouth Telecommunications, Inc., Verizon Florida, Inc., and Sprint – Florida, Inc., to file intrastate DSL tariffs.[6] According to PSC staff, there could be times when DSL traffic would fall within the category of local traffic, and therefore qualify for tariffing at the state level. PSC staff also noted receipt of numerous complaints against incumbent local exchange carriers who provide internet service. Therefore, PSC staff recommended that DSL service be tariffed at the state and federal level.[7]

The PSC declined to rule on the staff recommendation and requested additional information from staff to support the PSC's jurisdiction. It is unclear at this time when the PSC will revisit this matter. If the PSC were to approve staff's recommendation, such action could likely support PSC authority to require a universal service fund for DSL. For the present, however, PSC authority in this matter remains unsettled.

Need

A universal service fund would require that all consumers subsidize DSL service for lower income consumers and consumers in remote, higher cost areas through added charges on their bills. In order to determine whether this subsidy is warranted, committee staff considered several factors to determine need including technical feasibility and cost of deployment, demand, and benefit to consumers.

Technical Feasibility and Cost

telephone providers. Universal service provides local exchange carriers a subsidy to insure affordable basic local exchange telephone service to all Americans, including those in low-income and rural areas.

[4] Asymmetrical DSL is an asymmetric transmission form of DSL that commits a large part of its bandwidth to the downstream direction toward the end user.

[5] FCC 98-292, paragraph 27.

[6] PSC Staff Recommendation, Docket No. 001332-TL (January 25, 2001).

[7] Id.

High-speed and advanced services providers representing wireline, cable and wireless satellite technologies provided information regarding technical feasibility and cost. Deployment of DSL service is very costly. Wireline service is deployed over a twisted pair of voice grade copper wires that are modified to convert analog and digital signals to allow the DSL signal to travel over phone lines. The signal is limited to approximately 18,000 feet.[8] Therefore, provision of service to customers beyond 18,000 feet of the provider's central office requires added infrastructure creating additional costs. The costs per customer increase dramatically in remote areas because of the smaller customer base. A study conducted by the National Exchange Carriers Association indicates that the cost to provide service to customers directly surrounding a central or remote dial office is $493 per line. The cost to provide service beyond 18,000 feet to customers who are still fairly close to distribution lines rises to $4,121 per line. The cost to upgrade loops to provide service to customers in sparsely populated areas, however, rises to $9,328 per line.[9] BellSouth indicated that it could provide service using remote stations that would extend lines beyond central offices. This, however, would still cost approximately $1,000 per subscriber. As discussed in the following section, it appears that the cost of providing DSL would likely outweigh what most consumers would be willing to spend.

Demand

The rural local exchange carriers indicated low rural demand. Adams Group, Inc., which represents a coalition of rural local exchange providers[10] reported that only 15% of its customers indicated they would pay approximately $45 to $49 for DSL inclusive of internet access. Another rural provider, Frontier Communications, indicated that 23 of its customers were receiving ADSL service, and that 39 additional customers have requested service. Those 39 customers, who reside beyond Frontier's current infrastructure, represent less than 1% of its customer base. The larger incumbent providers, Sprint and BellSouth, indicated that demand is the most important determinant for deployment but were unable to provide specific demand data. BellSouth did indicate, however, that it was targeting its deployment to reach the greatest number of people. Sprint indicated that it deployed in exchanges where economics and market conditions are favorable, including rural areas. Sprint pointed out, however, that high-speed and advanced services were not universally available in those exchanges. During a follow-up conversation, a Sprint representative stated that market conditions and economics were most favorable in higher populated areas. In light of the fact that rural areas make up a very small percentage of Florida's population,[11] BellSouth's and Sprint's responses suggest that demand is higher in urban areas.

PSC staff conducted a consumer survey for the first and second quarters of 2001, which gathered, in part, information regarding internet use.[12] The survey responses indicate little demand for faster internet access. For the first quarter, 94% of the respondents reported having a computer. Of those respondents, 72.71% indicated they were not willing to pay more on their local phone bills for faster access to internet. For the second quarter, 62.39% of the respondents indicated having an interconnection at home through a personal computer. The respondents included 74.48% wireline subscribers, 11.29% cable subscribers, 1.30% satellite subscribers, and 3.47% "other" subscribers. Of the respondents, 73.07% indicated they were not willing to pay extra for internet service.

Benefits

The potential benefits of high-speed and advanced services are the most important factor in determining whether to require universal service to rural and low-income areas. With the exception of entertainment applications, dial-up access is sufficient to meet the needs of most internet users. For example, Forrester Research, Inc., an independent research firm that analyzes the future of technology change and its impact on businesses, consumers, and society, conducted a consumer survey indicating that over half of online consumers will have broadband services by 2005. Forrester reports that today's high-speed and advanced services subscribers are "tech-savvy" individuals who are likely to publish web sites and utilize the internet for financial provider sites. Forrester reports that future subscribers will more likely be using these services for

[8] Network Access Technologies, PSC Division of Policy Analysis and Intergovernmental Liaison (September 2000).
[9] NECA Rural Broadband Cost Study (June 2000).
[10] ALLTEL Florida, Inc., GTC, Inc., Northeast Telephone Company, TDS Telecom, and Smart City Telecom.
[11] The ratio of rural to urban populations in Florida is discussed in greater detail later in this report.
[12] Five hundred households a month responded to the PSC's questionnaires. The respondents represented North and Central Florida, Bay Area/Central Florida, South Florida except Miami, and Miami/FT. Lauderdale.

video and music entertainment purposes, television network sites, and instant access to local movie theater times and daily news.[13]

The PSC surveyed consumers regarding internet use.[14] The majority of respondents (83.82%) reported using the internet at home for e-mail and "chat rooms."[15] There were 70.90% that indicated they used the internet to access news, 32.79% who indicated they used the internet to access music and videos, and 19.11% who participated in internet games. There were 39.96% who used the internet for telecommuting and business-related activities.[16] Overall, the information suggests that, absent entertainment activities, most respondents' internet requirements can be met with dial-up service.

Staff also questioned to what extent high-speed access to the internet would benefit low-income households. Income is a major determinant of access to information technology. The U.S. Census Bureau indicates that nine out of ten family households with annual incomes of $75,000 or more owned computers. Eight out of ten of those households had internet access. Only three out of ten family households earning less than $25,000 annually, however, owned computers, and only two out of ten had internet access.[17] Unfortunately, legislation to require universal service will provide little advantage for households that cannot afford computers.

Availability

Research indicates that compared to the federal level, deployment appears to be advancing at an acceptable rate; however, it should be noted that Florida's population consists primarily of urban areas. The Legislature's Office of Economic and Demographic Research ("EDR") made a comparison of Florida's rural and urban areas based on information from the 1990 U.S. Census.[18] The comparison indicated that only 15.2% of Florida's population was rural.[19] Thirty-five counties had rural populations of over 50%; however, with the exception of Citrus and Marion Counties,[20] the total population for each county was well under 100,000 people, in some cases below 20,000. Only ten counties were made up entirely of rural populations.[21]

Federal Level

Nationally, deployment of high-speed and advanced services appears to be expanding at a rapid pace, even in rural areas. According to the FCC, high-speed lines connecting homes and businesses across America increased by 158% in year 2000 for a total of 7.1 million lines, of which 5.2 million were residential and small business subscribers. Approximately 4.3 million of those lines met the FCC's definition of advanced services. ADSL lines in service increased by 435% for a total of 2 million lines, coaxial cable lines increased 153% for a total of 3.6 million lines, and fixed wireless and satellite technology increased from 50,000 lines to 112,000 lines.[22] The FCC also reported high-speed service subscribers in 75% of the zip codes in the United States.[23] In rural areas, the FCC reported high-speed subscribers in 45% of the zip codes in the lowest population densities, compared to 24% a year earlier.

[13] When Broadband Goes Mainstream, Forrester Research Inc. (June 2001).

[14] PSC staff second quarter survey.

[15] On the national level e-mail is also the most common Internet application used by 88% of adults and 73% of children. Home Computers and Internet Use in the United States: August 2000, U.S. Census Bureau (September 2001).

[16] The survey did not provide data to determine whether the last category of respondents required high-speed video and audio applications to conduct their business.

[17] Home Computers and Internet Use in the United States: August 2000, U.S. Census Bureau (September 2001).

[18] Year 2000 results will not be released until Spring 2002.

[19] Florida Urban and Rural Population by County. (EDR's comparison considered the 1990 U.S. Census classification of rural areas as those areas not classified as urban. The term "urban" referred to places of 2,500 persons or more. More specifically, the term "rural," included places of "less than 2,500" and places "outside incorporated and census designated places and the rural portions of extended cities." http://www.census.gov/population/censusdata/urdef.txt

[20] 93,515 and 194,833, respectively.

[21] Calhoun, Dixie, Gilchrist, Glades, Hamilton, Lafayette, Levy, Liberty, Union, and Wakulla.

[22] High-Speed Services For Internet Access: Subscribership as of December 31, 2000, Federal Communications Commission (August 2001). The FCC gathers information from high-speed service providers having a minimum of 250 lines in service in a particular state.

[23] This figure includes zip codes in which the provider has at least one subscriber. It should be noted that some providers did not strictly follow FCC instructions to report zip codes in which a high-speed subscriber is present and have reported, for example, all zip codes within the boundary of a "wire center" that serves at least one high-speed subscriber.

The U.S. Department of Commerce National Telecommunications & Information Administration (NTIA) surveyed households for information, in part, regarding internet access and broadband services. The NTIA reported a national rate of 41.5% internet access. In rural areas, households trailed closely behind at 38.9% access. NTIA reported that 10.7% of online households used broadband services, compared to 7.3% in rural areas, 12.2% in central cities, and 11.8% in urban areas.[24]

State Level

The FCC reported that Florida had at least one high-speed services provider in 56% of its zip codes, four providers in 14% of its zip codes, five providers in 10% of its zip codes, six providers in 6% of its zip codes, and seven or more providers in 12% of its zip codes. The FCC further reported that Florida had 460,795 high-speed lines in service, thus ranking it number four in the nation for number of lines in service.[25]

BellSouth indicated that it has deployed ADSL service to 155 central offices and plans to deploy to 36 additional central offices by year-end 2001 for a total of 70% of its households. Sprint-Florida, Inc. indicated that it provides DSL to 49% of its exchanges. As discussed earlier, however, BellSouth's and Sprint's deployment is primarily focused upon densely populated areas where economics and market conditions are favorable. Verizon indicated that none of the counties in its service area contain rural populations. WorldCom indicated that it was offering DSL to large corporations in major metropolitan areas. Adams Group, Inc. indicated that its coalition of rural carriers currently provides ADSL to 10% of its service area with plans to increase that figure to 34% by year-end 2001. Frontier Communications indicated that ADSL is currently available in 30% of its territory and it plans to expand to 90% by year end 2003 if there is sufficient demand. Frontier indicated that it was uncertain of future demand at this time. This information suggests that deployment is advancing at an acceptable rate to meet current demand.

Viable Alternatives

Other technologies offering high-speed and advanced service include cable television companies and home satellite companies. The Florida Cable Telecommunications Association (FCTA) reported that the Florida cable industry is in the process of upgrading its plant to offer cable modem service. FCTA indicated that the cable industry has already upgraded well over 50% of its plant. The industry is capable of providing stand-alone cable modem service for approximately $45 to $50, and service bundled with cable television for approximately $35 to $40. Therefore, many Floridians already have a viable alternative to DSL, and it appears that access will improve as infrastructure is upgraded.

Satellite service is another emerging technology. Starband, Inc. is currently taking orders for service throughout the country. Satellite dish and installation costs total approximately $700 and monthly rates are approximately $70. Although the start-up costs are relatively high, they pale in comparison to the projected figures for extending DSL lines to remote areas.

Staff also researched the availability of high-speed and advanced services in county government, schools, and libraries. Staff was able to make contact with local officials in 48 counties. Thirty-eight counties reported having high-speed or advanced services or indicated they were in the process of obtaining those services. Services included DSL, cable, and T1 service.[26] Fourteen of those counties are included within EDR's list of counties with rural populations of over 50%. Some of the smaller counties have not considered internet service. Other small counties had various types of internet service for reasons other than availability; for instance, their departments were not centrally located, or the officials had not made a concerted effort to work out a single internet system.

Finally, many children and adults living in low income and rural areas have access to advanced services through Florida's public schools and libraries. Research indicates that 90% of Florida's public school district offices have at least T1 internet capability. T1 access is made available through the Florida Information Resource Network ("FIRN"), Florida's statewide data network dedicated to education.

[24] Falling Through the Net: Toward Digital Conclusion, NTIA (October 2000).

[25] High-Speed Services For Internet Access: Subscribership as of December 31, 2000, Federal Communications Commission (August 2001).

[26] T1 is a dedicated service. In other words, the provider runs a line to one specific user. T1s are often used by large companies and government offices that have many employees. A T1 line provides a transmission speed of 1.544 million bits per second.

Through federal grants, the school districts are able to access advanced services via the FIRN network. Connections branch out from the school district offices to elementary and high schools. It is estimated that over 60% of Florida's classrooms have access to those T1 connections.[27]

Of Florida's public libraries, 86% have access to a T1 line. The remaining 14% are located in remote areas with limited access and high deployment cost. The majority of the those schools are located within EDR's list of counties with rural populations of over 50%. The FIRN connection feeds into a main county or city library, which sends out connections to the branch libraries. The libraries also obtain grant money from federal sources. The predominant source of grant money for public schools and libraries is the E-Rate program, which is funded by the Federal Universal Service Fund.[28] It should be noted, however, that the bandwidth of the T1 signal is divided among the various users. Therefore, the transmission speed for each user is reduced as additional users are connected. Nevertheless, the deployment rates in Florida's public schools and libraries are significant and suggest a viable alternative to universal service.

Alternative Mechanisms

Other states have proposed legislation in the form of educational funding, grant programs and tax credits to promote computers ownership, access to the internet, and to promote deployment of high-speed and advanced services.

Hawaii: H.B.s 1110, 612, and 672 propose state funding to public high schools and libraries for computers and Internet access.

New Jersey: A.B. 2350 would appropriate funds to provide six grants of $50,000 for underserved schools.

Nebraska: L.B. 827 creates the Nebraska Internet Enhancement Fund to provide financial assistance to counties and municipalities to encourage the deployment of broadband or advanced telecommunications infrastructure throughout the state. Funding would be provided, in part, by legislative appropriations, gifts, grants, or bequests from federal, state, public and private sources. Applications would be processed by the Nebraska Public Service Commission, and priority would be given to low income and rural areas. Applicants would be required to provide matching grants of at least 25%.

California: S.B. 121 proposes a $200 per household tax credit to internet service providers who provide free computers and internet access to low income households.

Idaho: H.B. 337 provides a 3% tax credit to providers who invest in qualified broadband equipment[29] including, wireline, cable, mobile wireless, and satellite technologies.

If future demand for service is not met via DSL and other technologies, and if high-speed and advanced services become more beneficial to consumers, mechanisms similar to these may be appropriate.

RECOMMENDATIONS

Based upon the high cost of deployment, low demand in rural areas, and, most importantly, the relatively minor added benefits of DSL for most households, staff believes that a universal service mechanism is unwarranted. Further, a universal service mechanism would unfairly impose regulations upon the telecommunications industry, but not upon service providers representing other technologies that provide high-speed and advanced services. Finally, research indicates that many low-income and rural populations have access through public schools and libraries. Therefore, staff recommends that the Committee on Regulated Industries not file legislation to require a universal service fund or other mechanism for the provision of DSL.

[27] Information provided by the Council for Education Policy Research and Improvement.

[28] Information provided by the State Library of Florida and the Council for Education Policy Research and Improvement.

[29] Qualified broadband equipment is defined as equipment capable of transmitting signals at a rate of at least 200 kbps to a subscriber and at least 125 kbps from a subscriber.