

## **What is the Future for Universal Service in a Broadband World?**

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One key goal of the Telecommunications Act of 1996 was assurance of universal service to all consumers throughout the United States, with specific focus on difficult-to-serve and under-served segments, such as rural residents and the poor, along with other socially important elements such as libraries, schools and health care. To a large degree, the primary intent of the universal service mandate was to maintain and extend the traditional expectation that telecommunications providers had already established, whereby consumers had come to expect ubiquitous and affordable access to basic POTS services.

However, because other core legislative goals included the fostering of competition through deregulation amid an overall environment of rapid technology change, the Telecommunications Act had to make special provisions to help nurture the health of universal service delivery. Therefore Congress mandated that “the implicit subsidies that ensured universal service in a monopoly environment be replaced with explicit, predictable and sufficient support mechanisms.” By establishing a fund that collects assessments from interstate service providers and redistributes subsidies to local access providers, the original legislation sought to create a viable self-sustaining mechanism for fostering universal service.

Unfortunately, the rapidly shifting competitive landscape in the communications industry and the “law of unintended consequences” have combined to create several fundamental problems with the current methods of collecting assessments and redistributing subsidies. On one hand, the erosion of long distance revenues due to the substitution of alternate technologies such as wireless and Internet telephony is diminishing the available sources of funding for universal services. At the same time, the amount of funds needed to support universal service programs is projected to grow from approximately \$4.5 billion in 2000 to more than \$6 billion by 2003.

According to recent congressional testimony by Dorothy Attwood, Chief of the Wireline Competition Bureau for the FCC, “Universal service policy cannot remain static. The Commission must reexamine its regulatory framework in light of the changing and maturing nature of the telecommunications market as a whole.”

### **Some Guiding Principles**

In addition to fostering universal service provision, there is general agreement that the regulatory environment should be “neutral” with regard to competition and technology issues. To most people this simply means that the regulations should not favor one class of communications providers over another and shouldn’t dictate specific architectural solutions, however the core issues are more complicated than that. If the definition of

“competitors” is too narrow, such as including only local wireline carriers (ILECs and CLECs), then the regulations may fail to take into account the very real competitive impacts of other alternatives available to consumers, such as wireless, cable modems, etc. Similarly, if the regulations seek to “create competition” by subsidizing providers whose business models do not focus on facilities investments and/or outreach to under-served consumers, then the unintended result can actually be a stifling of the infrastructure investments needed to assure universal service.

In essence, the regulations should take a “value-received for value-invested” approach that nurtures true competition, innovation and investment focused on providing universal service to all consumers at competitive prices. While specific regulations should always be “neutral” with regard to competition between carriers, vendors, etc., the regulatory environment should have an overall “positive bias toward innovation” that fosters new technology approaches as long as they advance the goals of universal service.

Another guiding principle is that regulations should strive to avoid the lack of clarity or on-going uncertainty that can create drag on new investments and thus stifle product development. Not only is innovation critical for cost-effectively providing service to consumers in all areas of the U.S., it also represents the life-blood for maintaining the United States’ global leadership position in developing new communications technologies. With inherently long capital investment horizons and product development cycles characteristic of the telecommunications market, an extended period of regulatory uncertainty creates a gap in the development pipeline that can severely impact the U.S. economy for many years to come.

### **Key Challenges Facing Rural Areas**

Two of the primary challenges facing most rural areas in the U.S. are 1) the need for communications infrastructures that attract and support healthy economic development, and 2) the need to stem “population outflow” caused by lack of economic opportunities for rural residents. Universal availability of core telephone services and also advanced capabilities such as broadband are considered critical factors in meeting these challenges.

As Don Bond, president of Georgia-based Public Service Communications said in his congressional testimony, representing the Independent Telephone and Telecom Alliance and the National Rural Telecom Association, “Universal service is the cornerstone of our nation’s telecommunications policy. It is a social compact embracing (1) the ideal that all Americans, both urban and rural, are entitled to quality telecommunications services at affordable rates and (2) the economic fact that the value of a network to every customer is enhanced by ensuring that the greatest possible number of customers are connected to the network.”

Unfortunately, rural environments pose particular problems and costly challenges when it comes to meshing universal service coverage and broadband capabilities. Because most customers in rural regions are served by remote terminal (RT) nodes instead of full Central Office (CO) facilities, the traditional urban-oriented model of collocating

standalone xDSL equipment (DSLAMs, etc.) is not physically or economically viable. Adding DSL as an overlay niche service within a rural RT network requires cumbersome work-arounds, such as pouring new pads and building enclosures for co-locating DSLAMs. With each RT typically serving less than 700 subscribers, it can be economically unfeasible to add a separate DSLAM that cannot be adequately amortized over a large number of customers. In addition, CLECs have typically targeted more lucrative urbanized areas with their competitive broadband offerings rather than attempting to compete within high-cost rural environments.

### **Leveraging New Technology Innovations**

Newly available technology innovations are addressing this rural dilemma by treating broadband deployment as a true volume service rather than an add-on niche overlay service. By integrated both POTS and DSL “from the chip level upward” these technologies allow for RT line cards that incrementally add in DSL while maintaining current POTS line densities and also for completely new remotely deployable Broadband Loop Carriers (BLCs) that seamlessly extend converged networks to all rural users. Because these converged networks can be remotely managed by software, the cost is also greatly reduced for provisioning and maintaining universal service for both DSL and POTS.

The FCC and a number of state public utility commissions currently have pending proceedings to determine the appropriate regulatory stance for providing competitive access to such integrated POTS+DSL deployments. It is unclear whether CLECs will be provided incremental access as with current POTS line cards or whether the integrated systems will be considered more like an incumbent’s current DSLAM installations. However, regardless of the regulatory stance, the ability to simultaneously drive down network costs and extend universal availability of POTS+DSL will clearly help to further the core goals of universal service provision.

### **The Bottom Line: Fostering Universal Service, Competitiveness and Innovation**

Ultimately, the regulatory environment needs to pursue universal service provision through rationally structured incentives targeted to support the extension of real-world facilities-based infrastructures that are designed to deliver universal access. This can best be accomplished by structuring the assessment mechanisms to equitably encompass all communications alternatives (wireline, wireless, cable, etc.) and then targeting the subsidies to foster real investments and innovations that actually reach out to connect advanced services to more subscribers at lower costs.