

Killing With Kindness: Fatal Flaws in the \$5.7 Billion Universal Service Funding Mission and What Should be Done to Narrow the Digital Divide

Rob Frieden
Professor, Penn State University
102 Carnegie Building
University Park, Pennsylvania 16802
(814) 863-7996; rmf5@psu.edu

Annually the FCC requires telecommunications carriers and their consumers to pay over \$5.7 billion dollars ¹ to subsidize service by local exchange carriers operating in high cost areas, and the rates paid by residents in rural areas and Indian reservations, the poor, schools, libraries, rural hospitals and clinics primarily for basic “lifeline” telephone service. ² Despite this

¹ “Outlays from the U[niversal] S[ervice] F[und] grew from \$3.3 billion in fiscal year 1999 to \$5.7 billion in fiscal year 2004.” Congress of the United States, Congressional Budget Office, *Financing Universal Telephone Service*, Summary, viii (March, 2005); available at: <http://www.cbo.gov/showdoc.cfm?index=6191&sequence=0> [hereinafter cited as CBO Paper].

² Universal service funding targeted to expand telephone subscription offers financial subsidies to qualifying individuals that defray the non-recurring cost to initiate service and the recurring costs for dial up telephone service. The services that are supported by the federal universal service support mechanisms are: (1) voice grade access to the public switched network; (2) local usage; (3) Dual Tone Multifrequency (DTMF) signaling or its functional equivalent for “touch tone” dialing; (4) single-party service or its functional equivalent; (5) access to emergency services, including 911 and enhanced 911; (6) access to operator services; (7) access to interexchange services; (8) access to directory assistance; and (9) toll limitation for qualifying low-income customers. Federal-State Joint Board on Universal Service, CC Docket No. 96-45, Recommended Decision, 19 FCC Rcd. 4257, 4264 (2004). The FCC has declined to increase the scope of services qualifying for USF subsidies. See Federal-State Joint Board on Universal Service, CC Docket No. 96-45, Recommended Decision, 17 FCC Rcd. 14,095 (2002). However the Commission does not limit subsidies to only one telephone line per household, despite the recommendation by a Federal State joint Board that it do so: “[W]e do not adopt the recommendation of the Joint Board to limit high-cost support to a single connection that provides access to the public telephone network. Section 634 of the 2005 Consolidated Appropriations Act prohibits the Commission from utilizing appropriated funds to ‘modify, amend, or change’ its rules or regulations to implement this recommendation.” Federal-State Joint Board On Universal Service, CC Docket No. 96-45, Report and Order, 20 FCC Rcd. 6371 (2005) *citing* Consolidated Appropriations Act, 2005, Pub. L. No. 108-447, § 634, 118 Stat 2809 (2004) (2005 Consolidated Appropriations Act). The prohibition against using any appropriated funds for adopting a primary line restriction expires September, 30, 2005.

significant sum, the universal service mission remains unsolved even though new technologies and strategies could make parts of the task achievable.³ On the other hand, the scope of the universal service mission has become more extensive and costly as Congress, in the Telecommunications Act of 1996 (“’96 Act”),⁴ established specific goals for universal service including advanced telecommunications access for some beneficiaries, e.g., transmission of x-rays from a rural clinic to experts located in major urban hospitals and Internet access from schools and libraries. Additionally the stakes have risen as a Digital Divide⁵ separates people

³ Many new technologies that provide voice and data services have significant one time start up costs, but comparatively low recurring costs as compared to existing services. For example a wireless network will require a significant initial investment like copper wire networks. However unlike terrestrial networks, wireless networks have little if any recurring costs and lower operational and maintenance expenses: “Depending on a school's location and the distance the line has to cover, telephone companies will charge anywhere from a couple of hundred dollars to more than a thousand dollars per month for a T1 line. That fee pays just for the conduit, not for the Internet service, and in some rural areas, T1 lines can be hard to come by. In contrast, a point-to-point wireless link can provide bandwidth surpassing T1 for just the up-front cost of the radios and their installation -- typically ranging from \$5,000 to \$10,000 -- with no recurring charges after that.” Lars Kongsheim, Colorado’s ‘cursor cowboy’ helps schools go wireless and save money,” Online Electronic School World Wide Web site, available at: <http://www.electronic-school.com/0197f1.html>.

⁴ Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56 (codified in scattered sections of 47 U.S.C.) [hereinafter cited as ’96 Act]. Section 254 of the ’96 Act requires the Federal Communications Commission in consultation with a Federal-State Joint Board, comprised of FCC and State Public Utility Commissioners, to establish a comprehensive universal service financial support system based on explicit subsidies. “As codified in that law, the overriding goal of universal service is to ensure that the largest number of U.S. residents possible have access to high-quality telephone service regardless of their household income or geographic location. The 1996 law further authorized the Federal Communications Commission (FCC)—the administering agency—to provide funds to make advanced telecommunications service available to qualifying schools, libraries, and rural non-profit health care providers at subsidized rates. CBO Paper at 1.

⁵ The Digital Divide separates “those [people] with access to new technologies and those without.” Department of Commerce, National Telecommunications and Information

with cheap and plentiful broadband access and those without.

The FCC and its state public utility commission counterparts must balance the wants, needs and desires of numerous stakeholders including ones with significant political clout.⁶

Historically the universal service mission has served such ulterior motives as preserving the Bell System monopoly,⁷ transferring funds from urban to rural carriers and from long distance callers

Administration, *Fall Through the Net: Defining the Digital Divide*, Introduction, xii (July, 1999); available at:

<http://www.ntia.doc.gov/ntiahome/fttn99/fttn.pdf>; see also Digital Divide Network World Wide Web site; available at: <http://www.digitaldivide.net/>; Jaime Klima, *The E-Government Act: Promoting E-Quality or Exaggerating the Digital Divide?*, 2003 DUKE L. & TECH. REV. 9 (Apr. 15, 2003), at <http://www.law.duke.edu/journals/dltr/articles/2003dltr0009.html>; James E. Prieger, *The Supply Side of the Digital Divide: Is There Equal Availability in the Broadband Internet Access Market?* 41 ECON. INQUIRY 346 (2003); Peter K. Yu, *Bridging the Digital Divide: Equality in the Information Age*, 20 CARDOZO ARTS & ENT. L.J. 1 (2002); Organization for Economic Cooperation and Development. *Understanding the Digital Divide* (2001) at <http://www.oecd.org/dataoecd/38/57/1888451.pdf>.

⁶ “The concept of universal service stands high on the political agenda about telecommunications.” Pascal Verhoest, *The myth of universal service: hermeneutic considerations and political recommendations*, 22 MEDIA, CULTURE & SOC. 595 (2000); Although a 10% surcharge on a \$25 monthly long distance bill is not shocking, it does represent a significant cost. Any person using long distance services, a cell phone, or a pager is contributing to the Commission’s universal service fund. From a separation of powers perspective, the question that begs to be asked and answered is: How can Congress escape responsibility for either raising the revenue used to provide universal service subsidies or determining the specific uses to which those funds may be put?” Ronald J. Krotoszynski, Jr., *Reconsidering The Nondelegation Doctrine: Universal Service, The Power to Tax, and the Ratification Doctrine*, 80 IND. L.J. 239, 245(Spring, 2005).

⁷ “Universal service was seen by [AT&T President Theodore] Vail as the delivery of all telephone through one ‘system’ guided by one ‘policy’. Obviously he saw universal service as requiring a nationally integrated single system, managed by AT&T.” Robert W. Crandall, Leonard Waverman, *Who Pays for Universal Service?: When Telephone Subsidies Become Transparent*, 6 (2000); available at: <http://brookings.nap.edu/books/0815716117/html/index.html>. “[T]o Vail, universal service was not merely a social goal but instead a sound corporate strategy for eliminating competition and establishing ubiquitous interconnection for the Bell System.” Patricia M. Worthy, *Racial Minorities and the Quest to Narrow the Digital Divide: Redefining the Concept of ‘Universal Service,’* 26 HASTINGS COMM. & ENT. L. J., 1,7-8 (Autumn 2003); See also. Milton L.

to local service subscribers, subsidizing service even for consumers quite able to afford the full price, and making it possible for regulators to showcase extraordinarily cheap local calling rates.

Now that small and large volume consumers alike have readily available ways to evade some universal service funding burdens, the FCC and state regulators cannot ignore the inefficiencies and inequities in the system. Technological innovations such as Voice over the Internet Protocol (“VoIP”) ⁸ and marketing strategies that attempt to make calling card long distance ⁹ an enhanced, information service ¹⁰ show that carriers and consumers alike have

Mueller, Jr., *Universal Service: Competition, Interconnection, and Monopoly in the Making of the American Telephone System* (1997).

⁸ For technical background on how VoIP works see Intel, White Paper, *IP Telephony Basics*, available at http://www.intel.com/network/csp/resources/white_papers/4070web.htm; Susan Spradley and Alan Stoddard, Tutorial on Technical Challenges Associated with the Evolution to VoIP, Power Point Presentation, available at: http://www.fcc.gov/oet/tutorial/9-22-03_voip-final_slides_only.ppt.

⁹ See, e.g., AT&T Corp. Petition For Declaratory Ruling Regarding Enhanced Prepaid Calling Card Services, WC Docket No. 03-133, Regulation Of Prepaid Calling Card Services WC Docket No. 05-68, Order and Notice of Proposed Rulemaking, 20 FCC Rcd. 4826 (2005)(finding AT&T responsible for USF contributions from revenues derived from calling cards containing prerecorded information).

¹⁰ The ‘96 Act 47 U.S.C. § 153(20), describes information services as the “offering of a capability for generating, acquiring, storing, transforming, processing, retrieving, utilizing, or making available information via telecommunications.” See Federal-State Joint Board on Universal Service, CC Docket No. 96-45, Report to Congress, 13 FCC Rcd 11501, 11516 (1998) (the “1996 Act’s definitions of telecommunications service and information service essentially correspond to the [FCC’s] pre-existing categories of basic and enhanced services”). Prior to its use of the term information service, the FCC The Commission used the term “enhanced services” to refer to “services, offered over common carrier transmission facilities used in interstate communications, which employ computer processing applications that act on the format, content, code, protocol or similar aspects of the subscriber's transmitted information; provide the subscriber additional, different, or restructured information; or involve subscriber interaction with stored information.” 47 C.F.R. § 64.702(a).

resorted to self help.¹¹ Because universal service funding (“USF”) largely relies on interstate and international long distance telephone service revenues¹² carriers and consumers have devised ways to exempt such traffic thereby increasing the burden on others.¹³ USF avoidance, coupled with an increasing financial burden makes the existing regime unsustainable.

Additionally the Supreme Court recently supported the FCC’s rationale for exempting Internet access technologies from traditional telecommunications service regulation.¹⁴ Because

¹¹ In a short span of time VoIP has evolved from a low quality hobby of computer enthusiasts, who used the Internet as a medium to provide voice communications between computers, to a near equivalent to conventional dial up telephone service. VoIP provides consumers with access to lower cost services, because of technological efficiency in the use of the Internet’s packet switched architecture and reduced regulation imposed costs. Some VoIP service providers can avoid paying access charges to local exchange carriers and making USF contributions. *See* Petition for Declaratory Ruling that pulver.com’s Free World Dialup is Neither Telecommunications Nor a Telecommunications Service, Docket No. 03-45, Memorandum Opinion and Order, 19 FCC Rcd 3307 (2004)[hereinafter cited as Pulver.com Declaratory Ruling]. *See also*, Stephen E. Blythe, *Regulation of Voice-Over-Internet-Protocol in the United States, the European Union, and the United Kingdom*, 5 J. HIGH TECH. L. 161 (2005).

¹² “Telecommunications companies must pay a percentage of their interstate end-user revenues to the Universal Service Fund. This percentage is called the contribution factor. The contribution factor changes four times a year (quarterly) and is increased or decreased depending on the needs of the Universal Service programs.” Federal Communications Commission, Contribution Factors & Quarterly Filings, available at: http://www.fcc.gov/wcb/universal_service/quarter.html.

¹³ “[M]any customers now make ‘calls’ over the Internet. Governments at the federal and state levels have been reluctant to tax Internet-based transactions. As a result, a small but growing share of telecommunications is not subject to universal-service fees. Most blatantly, Skype had 111,000,000 downloads of its free VoIP software as of May 2005. Skype customers completely bypass universal service, unless they need an ultimate connection to a number-based phone.” Frank G. Bowe, *Universal Service Fund and People With Disabilities, Funding Mechanisms*; available at: http://people.hofstra.edu/faculty/frank_g_bowe/Funding_Mechanism.htm.

¹⁴ National Cable & Telecommunications Association v. Brand X Internet Services, 545 U.S. __, __ S.Ct. __, slip op. 04-277 (June 27, 2005).

the FCC exempts information service providers from making USF contributions,¹⁵ the Commission has created an increasingly attractive and large “safe harbor” exemption¹⁶ even for carriers that provide a functional equivalent to interstate telephone service, but which successfully characterize the service as an information service¹⁷ and not a telecommunications service.¹⁸ Just as the FCC has declared its inability to decouple a telecommunications service component from services such as cable modem¹⁹ Internet access, the Commission may not come

¹⁵ “Currently, all telecommunications companies that provide service between states, including long distance companies, local telephone companies, wireless telephone companies, paging companies, and payphone providers, are required to contribute to the Federal Universal Service Fund. Carriers providing international services also must contribute to the Fund.” Federal Communications Commission, Consumer & Governmental Affairs Bureau, Universal Service Fund Increases: What Every Consumer Should Know, at <http://ftp.fcc.gov/cgb/consumerfacts/usfincrease.html>.

¹⁶ “[A]ccelerating development of new technologies like ‘voice over Internet’ increases the strain on regulatory distinctions such as interstate/intrastate and telecommunications/non-telecommunications, and may reduce the overall amount of assessable revenues reported under the current system.” Federal-State Joint Board on Universal Service; 1998 Biennial Regulatory Review Streamlined Contributor Reporting Requirements Associated with Administration of Telecommunications Relay Service, North American Numbering Plan, Local Number Portability, and Universal Service Support Mechanisms, 17 FCC Rcd 3752, 3758 (2002).

¹⁷ Computer-to-computer VoIP that does not access the PSTN constitutes an information service, because it merely facilitates software created, peer-to-peer communication. “[F]acilitat[ing] a direct disintermediated voice communication, among other types of communications, in a peer-to-peer exchange cannot and does not remove it from the statutory definition of information service and place it within, for example, the definition of telecommunications service.” *Pulver.com Declaratory Ruling*, 19 FCC Rcd at 3315. *See* 47 U.S.C. § 153(20).

¹⁸ 47 U.S.C. §153(43).

¹⁹ *Inquiry Concerning High-Speed Access to the Internet Over Cable and Other Facilities; Internet Over Cable Declaratory Ruling; Appropriate Regulatory Treatment for Broadband Access to the Internet Over Cable Facilities*, GN Docket No. 00-185; CS Docket No. 02-52, Declaratory Ruling and Notice of Proposed Rulemaking, 17 FCC Rcd 4798 (2002), *aff’d in part, vacated in part, and remanded*, *Brand X Internet Services v. FCC*, 345 F.3d 1120 (9th Cir. 2003), *reversed and remanded*, 545 U.S. ___, 125 S.Ct. 2688 (Jun 27, 2005).

up with a lawful mechanism to extract voice services from integrated digital, data services that fit within the information service category. Should carriers integrate much of their voice traffic within a service exempt from USF, the program no longer will have sufficient funds, absent a decision to expand the class of services required to make a contribution.

This paper will examine the flaws, defects and political accommodations existing in the current universal service funding process with an eye toward proposing a new workable system that can support broadband infrastructure development and operate in a digital environment where few carriers may offer traditional telecommunications services on a stand alone basis.²⁰ The paper will propose a system that spreads the financial burden among all operators that offer services originating and/or terminating over networks accessible from and to telephone handsets. Additionally the paper will identify best practices in government strategies for stimulating innovation, infrastructure development and increased penetration of both basic and advanced telecommunications services. Lastly the paper will address what compromises and tradeoffs that the FCC and possibly Congress must impose on incumbent universal service beneficiaries, such as local exchange carriers and users.

The Universal Service Mission in the United States

Most nations consider ubiquitous and low cost access to basic telecommunication services a worthy public policy objective in the same vein as promoting access to other basic infrastructures such as electricity and water. “Telecommunications is not simply a connection

²⁰ Changed circumstances require a renewed examination of universal service funding, despite a long history of academic scrutiny. See Krishna P. Jayakar and Harmeet Sawhney, *Universal service: beyond established practice to possibility space*, 28 TELECOM. POL’Y., Nos. 3-4, 339-357 (2004).

between people, but a link in the chain of the development process itself.”²¹ A real, but not easily measured or quantified, correlation exists between access to telecommunications facilities and services and economic development.²² This means that efficient, effective and widely available telecommunications services can stimulate social and economic development by providing the vehicle for more and better commerce, political discourse, education, and delivery of government services including job training.²³

A fundamental problem in achieving universal access to basic and advanced

²¹ Heather E. Hudson, *Access to the Digital Economy: Issues in Rural and Developing Nations*, paper presented at Understanding the Digital Economy—Data, Tools and Research, conference organized by the United States Department of Commerce, Washington, D.C. May 25-26, 1999, available at <http://mitpress.mit.edu/ude.html>; see also <http://www.ecommerce.gov>.

²² See, e.g., Into Vogelsang, *Micro-Economic Effects of Privatizing Telecommunications Enterprises*, 13 BOS. U. INT'L L.J. (Fall, 1995); Robert J. Saunders, et al., *Telecommunications and Economic Development*, 4 (2d ed. 1994); Ben A. Petrazzini, *The Political Economy of Telecommunications Reform in Developing Countries: Privatization and Liberalization in Comparative Perspective*, 28 (1995); Walter T. Molano, *The Logic of Privatization: The Case of Telecommunications in the Southern Cone of Latin America* (1997).
see also Christopher J. Sozzi, Project Finance and Facilitating Telecommunications Infrastructure Development in Newly-Industrializing Countries, 12 SANTA CLARA COMPUTER & HIGH TECH. L.J. 435, 436-39 (1996); Bella Mody, et al., *Telecommunications Politics: Ownership and Control of the Information Highway in Developing Countries* (1995).

²³ “Broadband Internet access could contribute substantially to economic growth. Consumers benefit from new ways to acquire information, enjoy audio and video entertainment, monitor remote locations, receive medical care, and buy items ranging from books to cars. A study in 2001 estimated that universal broadband adoption could yield annual consumer benefits of \$300 billion.” Robert W. Hahn, Scott Wallsten, Robert W. Crandall, Robert E. Litan, *Bandwidth for the People*, American Enterprise Institute, Policy Rev. (Oct. 2004); available at: http://www.aei.org/publications/pubID.21593.filter.all/pub_detail.asp (citing Robert W. Crandall and Charles L. Jackson, *The \$500 Billion Opportunity: The Potential Economic Benefit of Widespread Diffusion of Broadband Internet Access* (Criterion Economics, 2001); available at: http://www.criterioneconomics.com/docs/Crandall_Jackson_500_Billion_Opportunity_July_2001.pdf).

telecommunication services lies not in the goal itself, but in developing strategies for financing and achieving the goal. From the onset of universal service funding, lofty concepts of equity and equal opportunities have intertwined with other mixed objectives. For example, in the early 1900s, senior management of AT&T recognized that promoting universal service, using an internally generated financial subsidy methodology, achieved the twin goals of promoting aspects of universal service and accruing support for maintaining “benevolent” Bell System market domination from rural, unaffiliated telephone companies and politicians.²⁴ Both elected government representatives and unelected government regulators recognize the benefits accruing from offering to citizen constituencies below cost access to telecommunications services.

Until enactment of the '96 Act, consumers of telecommunications service bore a universal service subsidy obligation without knowing the cost, because the Federal Communications Commission (“FCC”) and state regulatory agencies could hide the expense primarily in higher per minute long distance telephone charges and in the requirement that carriers charge for long distance service using averaged rates based on mileage. Using an implicit subsidy mechanism obscured the cost of the universal service mission as well as whether subsidy burdens blunted demand and caused other market distortions. Consumers could not readily determine the scope of their subsidy contribution, because carriers did not subdivide their single per minute rates into separate elements, including a surcharge for universal service.

The '96 Act requires explicit subsidies,²⁵ codifies the universal service mission²⁶ and

²⁴ When AT&T President Theodore Vail articulated universal service, he sought “the unification of telephone service under regulated local exchange monopolies.” Milton L. Mueller, Jr., *Universal Service: Competition, Interconnection, and Monopoly in the Making of the American Telephone System* 92 (1997).

²⁵ “There should be specific, predictable and sufficient Federal and State mechanisms to

establishes specific requirements for the FCC to implement, including near parity of cost and access to service by rural consumers. Carriers have responded to the explicit subsidy requirement by creating a separate billing line item to identify and pass through the specific cost of universal service support. For the third quarter of 2005, the “contribution factor” surcharge passed directly through to consumers amounted to 10.2% of a telecommunications carrier’s interstate and international end-user service revenues,²⁷ a rate that adds several dollars per month to the average consumer’s bill.

preserve and advance universal service.” 47 U.S.C. §254(b)(5).

²⁶ “The Joint Board and the Commission shall base policies for the preservation and advancement of universal service on the following principles:

(1) Quality and rates: Quality services should be available at just, reasonable, and affordable rates.

(2) Access to advanced services: Access to advanced telecommunications and information services should be provided in all regions of the Nation.

(3) Access in rural and high cost areas: Consumers in all regions of the Nation, including low-income consumers and those in rural, insular, and high cost areas, should have access to telecommunications and information services, including interexchange services and advanced telecommunications and information services, that are reasonably comparable to those services provided in urban areas and that are available at rates that are reasonably comparable to rates charged for similar services in urban areas.

(4) Equitable and nondiscriminatory contributions: All providers of telecommunications services should make an equitable and nondiscriminatory contribution to the preservation and advancement of universal service.” 47 U.S.C. § 254(b)(1)-(4).

²⁷ See Federal Communications Commission, Universal Service, Contribution Factors & Quarterly Filings, available at: http://www.fcc.gov/wcb/universal_service/quarter.html.

Four Types of Universal Service Promotions

The universal service mission in the United States traditionally has meant that carriers have a duty to ensure that the largest possible number of residents have access to basic telephone service regardless of income and geographical location. Unlike other nations, carriers and not the national government, initially devised and managed the process as well as collected and internally assigned where the subsidies went. This carrier-managed process put carriers in the position of charging rates that built in universal service subsidies with the surcharges largely retained by the carriers in exchange for charging lower rates to preferred constituencies and for transferring part of the surcharge to carriers operating in high cost, largely rural areas.

The '96 Act reaffirmed and clarified federal universal service policies to include parity among rural and urban consumers regarding access to telecommunications technologies and services. The '96 Act expanded the universal service mission to include discounted rates for basic and advanced telecommunications services by schools and libraries, commonly known as the e-rate program, and subsidies for discounted access to services by rural nonprofit health care providers.²⁸ After enactment of the '96 Act the FCC delegated authority for collecting and

²⁸ “Access to advanced telecommunications services for schools, health care, and libraries: Elementary and secondary schools and classrooms, health care providers, and libraries should have access to advanced telecommunications services as described in subsection (h).” 47 U.S.C. §254(b)(6); “A telecommunications carrier shall, upon receiving a bona fide request, provide telecommunications services which are necessary for the provision of health care services in a State, including instruction relating to such services, to any public or nonprofit health care provider that serves persons who reside in rural areas in that State at rates that are reasonably comparable to rates charged for similar services in urban areas in that State.” 47 U.S.C. §254(h)(1)(A); “All telecommunications carriers serving a geographic area shall, upon a bona fide request for any of its services that are within the definition of universal service under subsection (c)(3), provide such services to elementary schools, secondary schools, and libraries for educational purposes at rates less than the amounts charged for similar services to other parties. The discount shall be an amount that the Commission, with respect to interstate services,

distributing universal service funding to a nonprofit corporation known as the Universal Service Administrative Company.²⁹

Universal service funding supports four programs:

- 1) **The Low Income Program** reimburses local wireline and some wireless telephone companies for providing service discounts to qualifying low-income consumers.³⁰ The LinkUp America program offsets one-half of the initial hook-up fee, up to \$30.00. The program also encourages carriers to offer a deferred payment schedule for the initial installation fee. The Lifeline Assistance Program provides a discount of up to \$10.00 per month for basic telephone service. Residents of American Indian and Alaska Native tribal communities may qualify for up to an additional \$25.00 in support beyond current Lifeline support levels and expanded LinkUp support of up to \$70.00 in additional support beyond current levels. In 2004 this program provided \$800 million in support.³¹
- 2) **The High-Cost Program** provides financial support to local wireline and some wireless telephone companies that offer telecommunications services in areas where the cost of providing service exceeds a national or state average by between 115 and 135% depending on the type of cost elements supported. Carriers operating in high cost areas are divided into rural and non-rural locales and have six different cost areas considered: the first and last mile connection, known as the local loop; the facilities used to switch traffic for companies lacking optimal scale economies, because they serve fewer than 50,000 telephone lines; long term support for small carriers, subject to rate of return regulation, that do not fully recover, through access charge fees imposed on long distance carriers, the costs incurred in originating and terminating long distance traffic; interstate access support, a similar access charge financial offset for larger carriers subject to price

and the States, with respect to intrastate services, determine is appropriate and necessary to ensure affordable access to and use of such services by such entities.” 47 U.S.C. §254(h)(1)(B).

²⁹ USAC is a subsidiary of the National Exchange Carrier Association (“NECA”) and operates as a private, not-for-profit corporation. *See* Changes to the Board of Directors of the National Exchange Carrier Association, Third Report and Order in CC Docket No. 97-21, Fourth Order on Reconsideration in CC Docket No. 97-21 and Eight Order on Reconsideration in CC Docket No. 96-45, 13 FCC Rcd. 25058, 25063-66 (1998). *See also* <http://www.universalservice.org/default.asp>

³⁰ Low income qualification requires proof of income at or below 100% of the U.S. Census Bureau Poverty Level Guidelines, or proof that the applicant currently receives welfare assistance and non one claims the applicant as a dependent for tax purposes unless the application is 60 years of age or older.

³¹ CBO Paper at viii.

cap regulation; financial support for non-rural carriers operating in areas with costs exceeding 135 percent of the statewide average; and interstate common line support for small rate of return carriers that do not fully recover their per line costs from telephone subscribers who now pay a monthly \$6.50 subscriber line charge. In 2004 this program provided \$3.4 billion in support.³²

- 3) **The Schools and Libraries “e-rate” Program**³³ provides discounts of 20-90%, based on the percentage of students eligible for subsidized lunches for access to basic, local and long distance telecommunications services, including voice, data, video and wireless services, Internet access and the cost for installing and maintaining internal connections including switches, hubs, routers and wiring. A maximum of \$2.25 billion is available annually and \$1.5 billion was awarded in 2004.³⁴
- 4) **The Rural Health Care Program** ensures that health care providers located in rural areas pay no more than their urban counterparts for telecommunications services including those “telemedicine” services needed to access advanced diagnostic and other medical services available at urban medical centers. In 2004 this program awarded \$35 million.³⁵

³² *Id.*

³³ Schools and Libraries Universal Service Support Mechanism, CC Docket No. 02-6, Fifth Report and Order and Order, 19 FCC Rcd. 15,808 (2004), *petition for reconsideration pending*. “Under the Commission’s rules, eligible schools and libraries may receive discounts ranging from 20 percent to 90 percent of the pre-discount price of eligible services, based on indicators of need. Schools and libraries in areas with higher percentages of students eligible for free or reduced-price lunch through the National School Lunch Program (or a federally approved alternative mechanism) qualify for higher discounts for eligible services than applicants with low levels of eligibility for such programs. Schools and libraries located in rural areas also generally receive greater discounts. The Commission’s priority rules provide that requests for telecommunications services, voice mail and Internet access for all discount categories shall receive first priority for the available funding (Priority One services). The remaining funds are allocated to requests for support for internal connections (Priority Two services), beginning with the most economically disadvantaged schools and libraries, as determined by the schools and libraries discount matrix.” *Id.* 19 FCC Rcd. at 15810 (footnotes omitted).

³⁴ CBO Paper at viii.

³⁵ The Universal Service Administrative Company, *2004 Annual Report*, 31; available at: <http://www.universalservice.org/download/pdf/2004AnnualReport.pdf>

Macro-Level Problems with the Current System

Marketplace Distortion

At the macro-level, the current USF system distorts the local and long distance telephone service marketplace by creating artificial pricing signals.³⁶ Now that by law the FCC must establish a transparent subsidy process, experts and even ordinary consumers have a better sense of how much the USF regime costs. A line item on telecommunications service bills grows higher each quarter as does consumer resentment at what many perceive as a tax, despite FCC mandated language in bills disputing this perception.³⁷ The fact that just about every carrier passes on the USF burden as a separate billing line item makes this charge appear no differently than another line item that does pass through an actual tax.

Now that telephone bills rival the number of additional taxes, fees and surcharges imposed by car rental companies and airlines, some entrepreneurial companies have recognized that they can accrue a substantial cost of business discount by configuring telephone services that avoid triggering USF and other regulatory burdens. Savvy consumers have adopted similar self help strategies as well. Carrier and consumer tactics to save money by avoiding USF burdens

³⁶ “Because fees or taxes imposed on the consumption of a service alter prices that consumers face, they distort consumers’ choices: consumers will allocate their spending differently than they would have in the absence of a tax.” CBO Paper at 19.

³⁷ The FCC’s Truth in Billing policies state, *inter alia*, “that it is misleading to represent discretionary line item charges in any manner that suggests such line items are taxes or charges required by the government.” Truth-In-Billing And Billing Format, National Association of State Utility Consumer Advocates’ Petition for Declaratory Ruling Regarding Truth-in-Billing, CC Docket No. 98-170, CG Docket No. 04-208, Second Report and Order, Declaratory Ruling, and Second Further Notice of Proposed Rulemaking, 20 FCC Rcd. 6448, ¶1 (2005). Additionally, “the amount of a carrier’s federal universal service line item will not exceed the relevant interstate telecommunications portion of the bill times the relevant contribution factor.” Federal-State Joint Board on Universal Service, CC Docket No. 96-45, 17 FCC Rcd. 24,952, 24,978 (2002).

primarily rely on inconsistent, asymmetrical regulatory treatment of functionally equivalent services. The FCC exempts information services from USF contribution requirements, despite the fact that some of these services, such as VoIP, directly compete with telecommunications services whose providers have to contribute.³⁸

Poor Calibration of Benefits and Burdens

As the principal goal of USF seeks to improve telephone subscriptions and line penetration commonly referred to as teledensity, the current regime offers a poorly calibrated mechanism. USF provides financial benefits to consumers fully capable of paying the full cost of the telecommunication services they use. Some consumers who do not need financial support receive it indirectly through subsidies for which their carrier qualifies. In this scenario, wealthy land owners in exclusive rural enclaves pay a fraction of what they could and would pay, but for the USF system that rewards them fortuitously for residing in a high cost telephone service area. Other beneficiaries have an opportunity to acquire basic telephone services for a price well below what they might willingly pay. Additionally, the USF system does not exclude from

³⁸ See Allen S. Hammond, IV, *Universal Service: Problems, Solutions, and Responsive Policies*, 57 FED. COMM. L.J. 187 (March, 2005); David B. Bender, *Everything That Rises Must Converge: The Case For IP Telephony Regulation After Vonage v. Minnesota Public Utilities Commission*, 36 RUTGERS L.J. 607 (Winter, 2005); Sunny Lu, *Cellco Partnership v. FCC & Vonage Holdings Corp. v. Minnesota Public Utilities Commission: VoIP's Shifting Legal and Political Landscape*, 20 BERKELEY TECH. L.J. 859 (2005); Joseph Gratz, *Voice Over Internet Protocol*, 6 MINN. J. L. SCI. & TECH. 443 (Dec. 2004); J. Scott Marcus, *Evolving Core Capabilities of the Internet*, 3 J. TELECOMM. & HIGH TECH. L. 121 (2004); Chérie R. Kiser and Angela F. Collins, *Regulation on the Horizon: Are Regulators Poised to Address the Status of IP Telephony?*, 11 COMMLAW CONSPECTUS 19 (2003); Robert M. Frieden, *Dialing for Dollars: Should the FCC Regulate Internet Telephony?*, 23 RUTGERS COMPUTER & TECH. L.J. 47(1997).

subsidization costs incurred by a carrier, located in a high cost area, in providing service to more than one telephone at a single residence. As well nothing prevents even a low income subscriber of subsidized wireline service from also paying full retail rates for an additional wireless subscription.

On the other hand the USF regime also imposes contribution obligations on consumers, including the working poor and others not well equipped to absorb an increasing financial burden. The current 10.2% surcharge paid by all dial up long distance telephone users places a comparatively higher burden on heavy users which might include individuals with incomes just above the subsidy qualifying level. For some telephone subscribers in remote areas just about every telephone call triggers a toll charge and a USF contribution. Ironically for these subscribers a cellular radiotelephone might offer cheaper service with VoIP offering an even greater discount should rural high speed access options exist.

Inflexibility

Additionally quite generous basic service subsidies leave no funds available for targeting non-subscribers who would qualify for subsidized service, but who do not do so. Little empirical research has examined why people do not subscribe to basic telephone services and what strategies might create new and effective incentives to subscribe. Perhaps qualifying, but non participating individuals might prefer a telecommunications option other than basic dial up voice service. With greater flexibility a USF system might offer these non-users the option of applying the amount of the wireline voice service discount to a wireless, or high speed data connection.

Explicitness in the Burden Triggers Avoidance Strategies

Striking and visible evidence of the amount of USF support paid monthly has created a type of “compassion fatigue” with a growing incentive, especially for heavy interstate long

distance telephone callers, to pursue self-help options that reduce or eliminate their contributions. Through clever, but not always lawful strategies, carriers can eliminate their USF support burdens by devising service that offer long distance calling capability, but which qualify for regulatory classification other than telecommunications service. AT&T has offered quite attractive rates for pre-paid calling cards by assuming that inserting recorded information during the call setup process converts the call into an information service. The FCC has rejected this interpretation,³⁹ but instead of declaring all calling card operators subject to USF liability the Commission initiated a Rulemaking to examine the matter more broadly.

Ironically the price of dialup basic telephone service in the United States has retarded the rollout and subscription to advanced services. With rates typically not exceeding \$37 a month for unlimited local calling,⁴⁰ consumers may balk at adding broadband services that can cost double that amount. Consumers may stick with dial up access to the Internet using modems attached to their telephone lines, because they incur no additional charge for expanding usage of the local loop paid for on a flat monthly “all you can eat” rate. Users in other nations more readily have migrated to broadband service, because many can reduce their out of pocket Internet access costs by doing so. For nations where carriers meter and charge for local calling on a per pulse or per minute basis, consumers can reduce their Internet access costs by acquiring

³⁹ See AT&T Corp. Petition For Declaratory Ruling Regarding Enhanced Prepaid Calling Card Services, WC Docket No. 03-133, Regulation Of Prepaid Calling Card Services WC Docket No. 05-68, Order and Notice of Proposed Rulemaking, 20 FCC Rcd. 4826 (2005)(finding AT&T responsible for USF contributions from revenues derived from calling cards containing prerecorded information).

⁴⁰ See Federal Communications Commission, Industry Analysis and Technology Division, Wireline Competition Bureau, *Trends in Telephone Service*, Table 3.2, Average Monthly Household Telecommunications Expenditures By Type of Provider (April 2005); available at: http://www.fcc.gov/Bureaus/Common_Carrier/Reports/FCC-State_Link/IAD/trend605.pdf

unmetered, usage insensitive Digital Subscriber Line or cable modem access.

USF Primarily Supports System Narrowband, Dial Up Service

The emphasis on promoting basic service line penetration perversely has a negative effect on broadband market penetration. Except for schools, libraries and rural medical facilities current USF funding does not support access to advanced services. The combination of low dial up telephone rates, comparatively high broadband rates and no USF program outside of three select constituencies largely explains why the United States currently ranks between 12th and 16th in broadband penetration.⁴¹ Despite progress in broadband market penetration, not all United States carriers offer low cost per kilobit per second or megabit per second when compared globally, or against the best practices of carriers operating in robustly competitive markets.⁴² Growing competition particularly in urban areas may trigger significant downward pressure on broadband rates. However concerns about an urban/rural Digital Divide remain credible where inter-modal competition does not exist. For example most DSL services cannot

⁴¹ The International Telecommunication Union reported that as of January 1, 2005 the United States ranked 16th in broadband penetration measured in terms of number of subscribers per 100 inhabitants. See International Telecommunications Union, ITU Strategy and Policy Unit Newsblog; available at: <http://www.itu.int/osg/spu/newslog/ITUs+New+Broadband+Statistics+For+1+January+2005.aspx>. The Organization for Economic Co-Operation and Development estimates the U.S. rank at 12th as of December 1, 2004. See *OECD Broadband Statistics*, December 2004; available at: http://www.oecd.org/document/60/0,2340,en_2825_495656_2496764_1_1_1_1,00.html

⁴² See Organization for Economic Co-Operation and Development, Directorate for Science, Technology and Industry, Committee for Information, Computer and Communications Policy, Working Party on Telecommunications and Information Services Policies, *Benchmarking Broadband Prices in the OECD*, DSTI/ICCP/TISP(2003)8 (June 18, 2004); available at: <http://www.oecd.org/dataoecd/58/17/32143101.pdf>. The author cannot get DSL service at his residence not far from Penn State University. The incumbent cable company offers maximum throughput of 256 kilobits per second for \$46.95 a month plus fees, taxes and surcharges.

extend beyond 15,000 feet from a telephone company switching facility,⁴³ thereby limiting the DSL option in many suburban, exurban and rural locales.

Micro-Level Problems With the Current System

The Status Quo Serves the Interests of Several Powerful Constituencies

At the micro-level the current USF system creates several constituencies keen on maintaining the status quo regardless of its efficacy and efficiency. Elected officials perceive a benefit in helping to maintain below cost telephone service for some constituents. The Universal Service Administrative Company (“USAC”)⁴⁴ has every incentive to make itself indispensable even though its principle duty lies in the seemingly straightforward task of collecting and dispensing USF funds.⁴⁵ A cottage industry of USF consultants has developed to help school

⁴³ See Curt Franklin, *How DSL Works*, available at <http://computer.howstuffworks.com/dsl.htm>.

⁴⁴ “USAC administers the schools and libraries universal service support program under Commission oversight. Under this program, eligible schools, libraries, and consortia that include eligible schools and libraries, may receive discounts for eligible telecommunications services, voice mail, Internet access, and internal connections. Prior to applying for discounted services, an applicant must conduct a technology assessment and develop a technology plan to ensure that any services it purchases will be used effectively. The applicant then must submit to the Administrator a completed FCC Form 470, in which the applicant sets forth, among other things, the services for which it seeks discounts. Once the school or library has complied with the Commission's competitive bidding requirements and entered into agreements for eligible services, it must file an FCC Form 471 application to notify the Administrator of the services that have been ordered, the service providers with whom the applicant has entered into an agreement, and an estimate of funds needed to cover the discounts to be given for eligible services.” Schools and Libraries Universal Service Support Mechanism, CC Docket No. 02-6, Fifth Report and Order and Order, 19 FCC Rcd. 15,808, 15,809 (2004), *petition for reconsideration pending*.

⁴⁵ For insight of the procedural complexity of the USAC e-rate funding process see John Noram, *E-rate for Beginners*, Power point presentation (Sept. 27-29, 2004); available at: <http://www.sl.universalservice.org/data/ppt/2004/01%20E-rate%20for%20Beginners.ppt>; see also Michigan Department of Education, *E-Rate Application Flow Chart*, available at: http://www.michigan.gov/documents/flowchart_61108_7.doc.

districts and libraries maneuver the USAC labyrinth of technology plans, forms and reports for securing e-rate funding.⁴⁶ Perhaps all too predictably criminals have devised ways to defraud USAC⁴⁷ causing the FCC belatedly to increase audits⁴⁸ and explore additional types of scrutiny.⁴⁹

Individually and collectively a large constituency has developed for maintaining the status quo. Because the current USF regime involves discounted recurring services and subsidies based on carrier calculated costs, achieving the universal service mission cannot occur. The USF process does not have a targeted end point at which time the FCC can declare partial victory and establish a glide path for reducing subsidies. The USF mechanism apparently will operate in perpetuity using monthly inbound contributions from interstate telecommunications subscribers primarily to wireline local exchange carriers who in turn discount their retail rates for select groups. Similarly the system compensates carriers year in and year out based on the assumption that once a carrier operates in a high cost area it probably always will, despite the fact that demographic change might render a portion of an otherwise high cost area, more densely

⁴⁶ See, e.g. eRate Solutions, LLC. World Wide Web page, available at: <http://www.eratesolutions.com/about.shtml>.

⁴⁷ Federal Communications Commission, Office of Inspector General, Semiannual Report (Oct. 31, 2002); available at: <http://www.fcc.gov/oig/sar902.pdf>; see also, Bob Williams, *Phone Fund for Schools, Libraries Riddled with Fraud*, The Center for Public Integrity (Jan. 9, 2003); available at: <http://www.public-i.org/telecom/report.aspx?aid=99&sid=200>

⁴⁸ Audits conducted by the FCC Office of Inspector General are available at: <http://www.fcc.gov/oig/oigreportsaudit/html>.

⁴⁹ Comprehensive Review of Universal Service Fund Management, Administration, and Oversight, WC Docket No. 05-195, Notice of Proposed Rulemaking and Further Notice of Proposed Rulemaking, FCC 05-124, 2005 WL 1405280 (rel. June 14, 2005) [hereinafter cited as USF Management Assessment].

populated, or occupied primarily by wealthy individuals.

Accepts Costs With Few Auditing Safeguards

The USF system largely accepts as a given whatever costs carriers report with no regard for whether carriers could operate more efficiently and whether new technologies might offer lower costs, and possibly use technologies lacking significant recurring operating costs. This means that neither the USAC nor the FCC does much by way of examining whether a carrier might more cheaply serve USF beneficiaries and more broadly whether USF has achieved progress in reaching goals.⁵⁰ Even though new technological options, such as fixed and mobile wireless services, might offer a better value proposition, the USF regime does not require competitive bidding among prospective service providers for the opportunity to receive subsidies to serve a high cost area. The FCC now allows for multiple “eligible telecommunications carriers”⁵¹ to serve the same rural and high cost region, but these carriers do not compete for the

⁵⁰ Despite eight years of operation neither the FCC nor the USAC has established clearly articulated goals and a process for compiling reliable performance data. “The Commission is in the process of compiling USF performance measures, particularly for the Schools and Libraries program and the High Cost program, in order to comply with the Office of Management and Budget (“OMB”) Program Assessment Rating Tool (“PART”) requirements.” USF Management Assessment at ¶24. The FCC only recently solicited “comment on suitable outcome, output, and efficiency measures for the E-rate program.” *Id.* at ¶25.

⁵¹ Federal-State Joint Board on Universal Service, CC Docket No. 96-45, Recommended Decision, 19 FCC Rcd. 4257 (2004)(recommended revisions to ETC designation process). The Commission recently tightened the requirements existing and prospective ETCs must satisfy. Applicants and incumbents must provide: 1) a five-year plan demonstrating how high-cost universal service support will be used to improve its coverage, service quality or capacity in every geographical area served by a switching facility known as a wire center; 2) demonstrate its ability to remain functional in emergency situations; 3) demonstrate that it will satisfy consumer protection and service quality standards; 4) offer local usage plans comparable to those offered by the incumbent local exchange carrier in the areas for which a prospective ETC seeks designation; and 5) acknowledge that it may be required to provide equal access if all other ETCs in the designated service area relinquish their designations. Federal-State Joint Board on Universal Service, CC Docket No. 96-45, Report and Order, 20 FCC Rcd. 6371 (2005).

privilege. Instead one ETC can tap into the USF funds otherwise allocated to another ETC, because universal service funding is “portable”⁵² and can be reassigned on a per line basis to another ETC without a net increase in teledensity.⁵³

System Prone to Abuse

The current USF regime creates opportunities for fraud⁵⁴ and provides incentives for

⁵² Once certified, an Eligible Telecommunications Carrier receives the same financial support on a line-by-line basis as received by the incumbent carrier, even though it might not serve the entire geographical area as the incumbent. “The potential for creamskimming, however, arises when an ETC seeks designation in a disproportionate share of the higher-density wire centers in an incumbent LEC’s service area. By serving a disproportionate share of the high-density portion of a service area, an ETC may receive more support than is reflective of the rural incumbent LEC’s costs of serving that wire center because support for each line is based on the rural telephone company’s average costs for serving the entire service area unless the incumbent LEC has disaggregated its support. Because line density is a significant cost driver, it is reasonable to assume that the highest-density wire centers are the least costly to serve, on a per-subscriber basis. The effects of creamskimming also would unfairly affect the incumbent LEC’s ability to provide service throughout the area since it would be obligated to serve the remaining high-cost wire centers in the rural service area while ETCs could target the rural incumbent LEC’s customers in the lowest cost areas and also receive support for serving the customers in these areas.” Federal-State Joint Board on Universal Service, CC Docket No. 96-45, Report and Order, FCC 05-46, 20 FCC Rcd. 6371, ¶49 (2005).

⁵³ Under the Commission’s portability rules, a competitive ETC receives the same support for each line served that the incumbent carrier would receive, based on the incumbent carrier’s costs. *See* 47 C.F.R. § 54.307. “Similar to other types of universal service support, interstate access support is portable to competitive ETCs. Consequently, because interstate access support is targeted to \$650 million, when a competitive ETC receives interstate access support, there is a corresponding reduction in support available to incumbent carriers.” Federal-State Joint Board on Universal Service, Sprint Corporation Application for Designation as an Eligible Telecommunications Carrier in the State of Alabama, 19 FCC Rcd. 22,663, 22,671 (2004).

⁵⁴ *See, e.g.*, FCC Proposes Over \$2 Million in Forfeitures for Universal Service Fund and Other Regulatory Program Violations, Public Notice (rel. July 25, 2005); available at: http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-260156A1.doc; Carrera Communications, LP, Notice of Apparent Liability for Forfeiture and Order, FCC 05-147 (rel. July 25, 2005); available at: http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-05-147A1.doc.

carriers and e-rate beneficiaries to ignore technological innovations that would reduce their dependency, or qualifications for subsidies. Arguably a rural, high cost telephone company could replace its expensive, high maintenance copper wire network with a possibly cheaper and more accessible wireless or VoIP alternative. Despite high initial sunk costs for such a new network, much lower annual recurring costs might provide a cheaper way to provide service in the long term. However carriers would accrue no upside financial reward for taking the risk and making the investment in new technologies. The USF status quo assures a regular and predictable revenue flow with no risk and ample reward. As well the current USF system expects carriers to have stable or increasing recurring costs, even though new technologies offer the prospect of lower recurring costs.

The USF also creates disincentives for beneficiaries to consider innovative alternatives to paying incumbent carriers for existing services. In specifying the types of services that qualify for subsidies, the USF regime emphasizes voice services to the detriment of data and Internet services and ensures that most money stays or flows exclusively into the coffers of incumbent carriers. Even the e-rate system, which permits Internet access subsidies, precludes schools and libraries from erecting wireless networks that extend into a community, to aggregate requirements to qualify for higher capacity services from carriers at lower per unit costs, or to develop alternative Internet networks such as that being developed by a consortium of universities.⁵⁵

⁵⁵ “The FCC built assumptions based on existing, widespread models into its regulations, and thus required that new installations be ‘more of the same’; this benefited incumbent companies. In particular, regulations prevented the use of funds for the purchase of external lines

Emphasis on Service Subscriptions

Instead of promoting pure and applied research and development aiming to solve access challenges, USF flows primarily to a small set of stakeholders who provide basic services and to constituencies receiving “tied aid,” i.e., funds tied to purchasing a narrow set of existing commercial services primarily from incumbents.⁵⁶ Rather than promote a fair and transparent business environment, the USF rewards administrative skills, such as mastering the e-rate system filing process and reliance on an incumbent carrier’s voice network. With all the rhetoric about contestable if not competitive markets in telecommunications, the USF system appears somewhat anachronistic in supporting the perception that only “one carrier of last resort” can operate with limited technological options in rural and high cost areas.

By emphasizing incumbent carriers’ existing, basic services, the USF does nothing to stimulate efforts to achieve digital literacy, i.e., understanding how best to use telecommunications technologies as tools for enhancing learning, medical care, and the quality

or wireless equipment, which would have been a low-cost, long-term solution for many schools and libraries. Schools and libraries were not given practical goals, but simply instructed to spend as much of other people's money as they could. In other words, their goal was to spend the available money on easily obtainable equipment, not necessarily to make the best possible use of the money. They had no encouragement to be creative. The law provided only telecom equipment and networking services. It did not consider other useful things one could ask for to achieve Internet access. Such as computers, for instance. Or trained teachers and staff.” Andy Oram, Getting Universal Service to Work, O’Reilly Developer Weblogs, July 21, 2004; available at: <http://www.oreillynet.com/pub/wlg/5217>.

⁵⁶ Starting in 2004, the FCC compiles annually a list of eligible services available for discounting under the e-rate program. “To be eligible for support, Telecommunications Services must be provided by an eligible telecommunications provider, that is, one who provides Telecommunications on a common carriage basis.” Release of Funding Year 2005 Eligible Services List For Schools and Libraries Universal Service Mechanism, CC Docket No. 02-6, Public Notice, 19 FCC Rcd. 20,221, 20,222 (2004).

of life. It becomes all too easy for a school district or library to follow a tried and true strategy designed to extract the most funding available from the e-rate rather than to think strategically on how best to achieve goals for which technology constitutes one part of the solution. In light of the growing complexity in telecommunications and information processing technologies, USF beneficiaries might find it advantageous to develop at least some in-house expertise on how to use these technologies. Curiously the USF does not readily support training in the design, installation and maintenance of networks. Without such expertise USF beneficiaries have every incentive to outsource projects and to take generic services with little if any customization that might better meet special requirements.⁵⁷

Potential for Substantial Future Deficits in USF Funding

Technological innovations, conflicting FCC regulatory objectives and a recent Supreme Court case combine to jeopardize the financial viability of the current USF regime. The migration from analog to digital networks makes it possible for voice services to become a possibly free software application that rides on the link provided by Internet access services such as DSL and cable modems.⁵⁸ Currently VoIP and other services provide a relatively small

⁵⁷ See Heather E. Hudson, *Universal access: what have we learned from the E-rate?*, 28 TELECOM. POL'Y., Nos. 3-4, 309 (2004)(noting the prohibition on schools or libraries from providing Internet access externally and reporting on a highly conditioned FCC waiver granted for Alaska but not yet applied).

⁵⁸ See Rob Frieden, *Adjusting the Horizontal and Vertical in Telecommunications Regulation: A Comparison of the Traditional and a New Layered Approach*, 55 FED. COMM. L.J., No. 2, 207-250 (March, 2003); Richard S. Whitt, *A Horizontal Leap Forward: Formulating A New Communications Public Policy Framework Based on the Network Layers Model*, 56 FED. COMM. L.J. 587 (May, 2004); Yochai Benkler, *From Consumers to Users: Shifting the Deeper Structures of Regulation Toward Sustainable Commons and User Access*, 52 FED. COMM. L.J. 561 (2000); Scott Marcus, *The Potential Relevance to the United States of the European Union's Newly Adopted Regulatory Framework for Telecommunications*, Federal Communications Commission, Office of Plans and Policy Working Paper Series No. 36 (July, 2002); available at:

volume of voice telephony traffic in comparison to traditional, dial up, circuit-switched telephone services offered by telecommunications service providers. However, the very real potential exists for packet switched, Internet Protocol networking to become the primary medium for most voice and data services. Should this occur, it follows that information services will constitute the primary retail, end user service provided by such networks.

Despite the fact that carriers providing information services do not trigger a USF contribution requirement, the FCC has several countervailing motivations to apply this classification to as many services as possible. The Commission wisely has decided that it should refrain from automatically applying legacy regulations for services that might operate in a competitive marketplace and which might incubate and develop more robustly without substantial government intrusion. But instincts and incentives for deregulation or limited regulation may embolden the Commission to extend the information service classification down a slippery slope that includes telecommunications services, including ones the Commission previously declined to classify as information services.

To achieve deregulatory parity between cable modem and DSL service the FCC soon will reclassify DSL as an information service so that carriers providing this service qualify for limited regulation already applied to cable modem service. Applying the information service

<http://www.fcc.gov/osp/workingp.html>; Douglas Sicker, *Further Defining a Layered Model for Telecommunications Policy* (2002); unpublished paper available at: <http://intel.si.umich.edu/tprc/papers/2002/95/LayeredTelecomPolicy.pdf>; Kevin Werbach, *A Layers Model for Internet Policy*, 1 J. ON TELECOM. & HIGH TECH. L., 37 (2002); John T. Nakahata, *Regulating Information Platforms: The Challenge of Rewriting Regulation From the Bottom Up*, 1 J. ON TELECOM. & HIGH TECH. L., 95 (2002); Phillip J. Weiser, *Law and Information Platforms*, J. ON TELECOM. & HIGH TECH. L., 1 (2002); Craig McTaggart, *A Layered Approach to Internet Legal Analysis* (Dec. 21, 2002); available at <http://www.innovationlaw.org/cm/ilg2002/reading/layered1.pdf>;

classification to all Internet access services levels the competitive playing field, by eliminating regulatory asymmetry, i.e., inconsistent regulatory treatment of functionally equivalent services which can provide a competitive advantage to the less regulated service.⁵⁹ It also responds to suggestions from incumbent, facilities-based carriers, such as Verizon and SBC Corporation, that the Commission remove disincentives for these companies to invest in broadband infrastructure. The FCC has accommodated these demands by exempting broadband plant from compulsory unbundling and leasing on below market terms.⁶⁰ True to their word incumbent carriers have accelerated investment in fiber optic and other advanced broadband plant.

It follows that once carriers complete an unregulated broadband network, they will load that network with both pure information services, e.g., Internet access, but also use software applications and other innovations to include other retail services, including ones that previously

⁵⁹ For analysis of regulatory arbitrage in telecommunications see Rob Frieden, *The FCC's Name Game: How Shifting Regulatory Classifications Affect Competition*, 19 BERKELEY TECH. L. J., No. 4, 1275-1314 (Fall, 2004); Rob Frieden, *Regulatory Arbitrage Strategies and Tactics in Telecommunications*, 5 N.C. J. L. & TECH., No. 2, 227-275 (2004); available at: http://www.jolt.unc.edu/Vol5_I2/pdf/Frieden%20v5i2.pdf.

⁶⁰ Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers, Implementation of the Local Competition Provisions of the Telecommunications Act of 1996, Deployment of Wireline Services Offering Advanced Telecommunications Capability, CC Docket Nos. 01-338, 96-98, 98- 147, Report and Order and Order on Remand and Further Notice of Proposed Rulemaking, 18 FCC Rcd 16978 (2003), corrected by Errata, 18 FCC Rcd 19020 (2003), *partially vacated and sub nom.*, United States Telecom Ass'n v. FCC, 359 F.3d 554 (D.C. Cir. 2004) (USTA II), *cert. denied*, 125 S.Ct. 313, Order on Reconsideration, 19 FCC Rcd. 15,856 (2004), Further Reconsideration, 19 FCC Rcd. 20,293 (2004) (Triennial Review FTTC Reconsideration Order). In response to the D.C. Circuit's vacatur of certain Triennial Review Order unbundling rules, the FCC issued an Interim Order and NPRM, setting forth a six-month interim unbundling framework with respect to those network elements, and seeking comment on permanent unbundling rules that would respond to the USTA II decision. Unbundled Access to Network Elements; Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers, WC Docket No. 04-313, CC Docket No. 01-338, Order and Notice of Proposed Rulemaking, 19 FCC Rcd. 16,783 (2004); Order on Remand, 20 FCC Rcd. 2533 (2005).

constituted a telecommunications service, or possibly remain as such. The latter category includes voice telephony, traditionally regulated as a telecommunications service and the primary source of USF subsidy funds. Having installed an infrastructure exempt from legacy common carrier, telecommunications service regulation, incumbent facilities-based carriers have every incentive to migrate regulated voice traffic onto unregulated information service networks. Such traffic migration would achieve operational efficiencies while also qualifying most voice telephony traffic for the information service deregulatory “safe harbor” that forecloses application of the telecommunications service classification and in turn USF funding burdens. These carriers can support their information service classification claim for voice telephony by referring to the Commission’s classification of VoIP telephony as an information service and its pending reclassification of DSL into the same category.

The carriers can also support their argument by noting the precedent established in *National Cable & Telecommunications Association v. Brand X Internet Services*, 545 U.S. 125 S.Ct. 2688, slip op. 04-277 (June 27, 2005) where a majority of the Supreme Court endorsed the FCC’s information service classification for cable modem service. A majority of the court supported use of the *Chevron* standard⁶¹ that supports deferral to administrative agency decision making that reasonably interprets and implements statutory language.⁶² The Court agreed that the FCC could reasonably have concluded that cable modems solely provide an information

⁶¹ *Chevron U.S.A. v. National Resources Defense Council, Inc.* 467 U.S. 837, 104 S.Ct. 2778 (1984).

⁶² “If a statute is ambiguous, and if the implementing agency’s construction is reasonable, *Chevron* requires a federal court to accept the agency’s construction of the statute, even if the agency’s reading differs from what the court believes is the best statutory interpretation.” *Brand X*, slip op. at 8 *citing* *Chevron* at 843-844 and n.11.

service, despite the use of telecommunications to link subscribers with content. Accordingly the Court reversed the Ninth Circuit Court of Appeal's prior determination that a separate and identifiable telecommunications service element existed on grounds that the FCC's statutory construction deserved judicial deference:

A court's prior judicial construction of a statute trumps an agency construction otherwise entitled to *Chevron* deference only if the prior court decision holds that its construction follows from unambiguous terms of the statute and thus leaves no room for agency discretion. ⁶³

The Court concluded that the Communications Act, as amended by the Telecommunications Act of 1996, contained ambiguities whether cable companies offered telecommunications in conjunction with their cable modem service.

The majority opinion used several analogies to support the view that the FCC lawfully could ignore or subordinate the telecommunications function. The majority's analogies provided examples where a venture offers a number of services, some of which combine into a consolidated offering, and others that are made available separately. In the former the majority noted that car dealers sell cars and not a collection of integrated components, such as steel frames and carpeting. In the latter analogies, the majority noted that a pet store might offer dog leashes in addition to puppies. Because ambiguity exists as to the functional integration or separateness of telecommunications, the Court majority gladly deferred to the FCC. The nature and scope of integration between telecommunications and information processing:

turns not on the language of the [Communications] Act, but on the factual particulars of how Internet technology works and how it is provided, questions *Chevron* leave to the Commission to resolve in the first instance. ⁶⁴

⁶³ Brand X slip op. at 10.

⁶⁴ Brand X slip op. at 19-20.

While engaging in the use of “warring analogies”⁶⁵ the majority would prefer the FCC used its technical expertise to determine Congressional intent.

In a dissenting opinion, Justice Scalia did not agree that the FCC could lawfully and practically treat the telecommunications link as not separable from the predominate information processing services provided. He disputed the FCC’s view that cable television companies do not provide a telecommunications service when linking subscribers physically apart from the content they access.⁶⁶ Justice Scalia used pizzerias and pizza delivery for his primary analogy and asserted that one could not ignore the fact that pizza baking and pizza delivery constitute two separate elements of the pizza business:

It is therefore inevitable that customers will regard the competing cable-modem service as giving them *both* computing functionality *and* the physical pipe by which that functionality comes to their computer—both the pizza and the delivery service . . .⁶⁷

The use of simplistic, but competing analogies within Supreme Court opinions demonstrates how experts in the law struggle to conceptualize converging telecommunications and information processing technologies. The Court majority acknowledged that its decision will provide the legal foundation for the FCC to reclassify DSL service as an information service,⁶⁸

⁶⁵ Brand X slip op. at 20.

⁶⁶ “The important fact, however, is that the Commission has chosen to achieve this [result] through an implausible reading of the statute, and thus exceeded the authority given it by Congress.” Scalia Dissenting Opinion at 1.

⁶⁷ Scalia Dissenting Opinion at 6.

⁶⁸ “The Commission’s decision appears to be a first step in an effort to reshape the way the Commission regulates information-service providers; that may be why it has tentatively concluded that DSL service provided by facilities-based telephone companies should also be classified solely as an information service.” Brand X Majority Opinion at 31.

despite having previously identified a discrete and stand alone telecommunications service component. Apparently the desire to achieve deregulatory parity trumps the need for consistency in interpretation of terms created by the '96 Act.⁶⁹ Justice Scalia chides the majority for its undiscerning acceptance of an FCC bureaucratic sleight of hand that changes the facts to achieve an outcome not contemplated by law.

Expanding the information service classification to include DSL, even while still linked to existing copper wire networks, exempts DSL traffic from the USF burden even before facilities-based carriers complete their next generation, fiber optic networks. Upon completion of these networks, carriers will seamlessly combine voice, data, video and other services. Having declared that DSL service lacks a discrete telecommunications service element, the FCC will have little choice but to apply the information services classification to all convergent services thereby eliminating all USF burdens for services migrated from copper to fiber optic cables and other information service networks. Contrary to the example of voice mail, which the Supreme Court majority opinion used as evidence that the FCC could retain telecommunications services regulation on basic services,⁷⁰ it appears unlikely that the FCC could successfully disaggregate converging technologies and services to keep voice telephony in the regulated telecommunications service category. If the FCC claims an inability to decouple a stand alone

⁶⁹ See Rob Frieden, *The FCC's Name Game: How Shifting Regulatory Classifications Affect Competition*, 19 BERKELEY TECH. L.J., No. 4, 1275-1314 (Fall, 2004).

⁷⁰ A local telephone company could not escape Title II, common carrier regulation of its voice telephone service simply by coupling it with a voice mail information service, because the carrier "offers a transparent transmission path—telephone service—that transmits information independent of the information-storage capabilities provided by voice mail." Brand X Majority Opinion at 26.

telecommunications service link from information services provided via cable modems and DSL, then it follows that the Commission will have similar inability to decouple any telecommunications services from the variety of voice, data, and video services integrated and carried via an advanced network.

Best Practices in Promoting Access to Basic and Advanced Services

Nations other than the United States consistently have proven that more progress in promoting information and communications technology (“ICT”) literacy, teledensity and innovative uses can occur with less money, a smaller bureaucracy and reduced marketplace distortion. Best practices share the following characteristics:

- true technology neutrality coupled with a willingness to fund well articulated and community-supported projects rather than limit support to a fixed list of existing carrier services;
- capping government project funding to a percentage of total cost thereby requiring project advocates to seek financial support from other grantors, or from bank loans;
- creating incentives for demand aggregation among government and private users, particularly for broadband and data services;
- emphasizing one time project funding rather than recurring discounts;
- promoting innovation and creativity in projects, including technologies that provide greater efficiency and lower recurring costs;
- encouraging competition among universal service providers by auctioning off subsidy access; and
- blending government stewardship and vision with incentives for private stakeholders to pursue infrastructure investments.

Successful universal service programming requires governments to do more than throw money at the problem. If governments have no effective role in promoting universal service then it might make sense simply to create a “phone stamps” program where qualified beneficiaries

receive direct subsidies they could treat as cash when paying for telephone and Internet access services. If governments have no function other than to order redistribution of telecommunication revenues, then it should limit its role to loan guarantor as is the case in a parallel program administered by the Department of Agriculture.⁷¹

Governments can provide constructive and desirable services as technology incubator, steward, partial underwriter and anchor tenant without operating as central manager of the information economy. Some governments have successfully promoted universal service and infrastructure development, by developing a vision for what primarily market forces can achieve as augmented by limited and targeted governmental support.⁷² Best practices in the broader goal of ICT development evidence a promotional role for government through partial funding of specific projects, while primarily emphasizing private enterprise and facilities-based competition.

A Limited and Strategic Role for Government

Unlike the United States USF support structure, governments in other nations consider the need to blend efforts to develop skills in using ICT technology with financial support for procurement of ICT equipment and services. Rather than limit USF and ICT development funding to a closed and specific group of constituencies, some nations offer several types of financial support, e.g., loan guarantees, grants and tax credits, to any applicant that proposes

⁷¹ See United States Department of Agriculture, Rural Utilities Service-Telecommunications Program, World Wide Web Site, available at: <http://www.usda.gov/rus/telecom/index.htm>.

⁷² See, e.g., Rob Frieden, *Lessons from broadband development in Canada, Japan, Korea and the United States*, scheduled for publication in 29 TELECOM. POL'Y., Issues 7-8 (2005); prepublication draft available at: <http://www.personal.psu.edu/faculty/r/m/rmf5/>.

effective, efficient and innovative ways to stimulate ICT literacy and the provision of desirable services. Successful grant seekers know that they cannot simply tap into a gravy train to buy equipment and lease services without much thought as to which equipment and services can satisfy specific community requirements that include healthcare, education, access to information and licensing.

Governments have a key role in developing safeguards to promote trust, security, privacy and consumer protection in the access and use of ICT services, especially e-commerce. These roles require government stewardship, not “heavy handed” “command and control” centralized management. Achieving improvements in these areas requires both articulation of a cohesive “top-down” vision coupled with “bottom-up” projects proposed by users in a community who can aggregate supply of services and demand for ICT equipment and services. Best practices in ICT development do not rely exclusively or primarily on incumbent carriers to come up with innovative ways to serve a specific community’s needed. Rather than rely on a one size fits all inventory of qualifying USF services, best practices typically come from innovative uses of technology proposed by and for users.

Best practices do not occur when incumbents have little incentives to innovate, or to deviate from the status quo, not do they occur when incumbents leverage future investment in ICT infrastructure with a deregulatory or political agenda having little if anything to do with achieving the universal service mission. Governments can coordinate many possible funding strategies including direct underwriting, loans, favorable tax treatment, and financial support for research, development and technology demonstration projects. Best practices also provide opportunities for residents to become suppliers and consumers of ICT-mediated services.

Reshaping the Mission

In view of changing technologies and consumer expectations, the concepts of universal access and universal service remain in flux. The FCC should reexamine the concept universal access, including how the Commission achieves the universal service mission articulated by the '96 Act. Additionally the FCC must propose an alternative to current funding mechanism for universal service, because the status quo cannot work in an Internet-centric operating environment where carriers offer subscription-based, unlimited interstate voice traffic that avoids any USF burden.

As a threshold matter the FCC should consider its universal service mandate in terms of four inter-related components:

- 1) **Infrastructure**-the scope and nature of networks that provide users with access to basic and advanced telecommunications and information services;
- 2) **Services**-a revised determination of what constitutes basic “life-line” services and what other services, including broadband, that the FCC should include in an expanded universal service goal;
- 3) **Cost**-who should support universal service objectives and who could qualify for universal service subsidization of basic and advanced services; and
- 4) **Maintenance and Upgrades**-what incentives must regulators create to ensure that universal service providers maintain and upgrade their networks, but do not object to innovations, including user operated telecommunications networks, that achieve scale, efficiency and cost savings.

With these four components in mind Congress, the FCC, the USAC, subsidy contributors and subsidy recipients must confront an acute, short term problem: the potential for Internet-mediate telephone services and the expanding wingspan of the USF exempt information service classification to trigger a severe decline in interstate telecommunications service revenues subject to the USF burden. As more and more long distance traffic migrates to a USF exempt

safe harbor, consumers of conventional services will incur an increasing USF burden, most notably the USF contribution factor that carriers pass onto their customers as a billing line item. Consumers of conventional long distance telephone service will quickly reach compassion fatigue when they realize that their USF contribution grows while other consumers of VoIP services pay nothing. USF contribution avoidance strategies will become the latest regulatory arbitrage opportunity, even as the Commission should recognize the competitive harm and marketplace distortion such arbitrage triggers.

In the near term the FCC will have to confront the likelihood that a minutes of use USF contribution scheme will become unsustainable. In reforming the policies and rules applicable to access charges paid by one carrier for interconnection with another carrier, the Commission readily acknowledged the inequity and poor calibration with actual cost recovery resulting from use of a time-based charging mechanism.⁷³ The FCC has launched a multi-year campaign to replace metered carrier access charges, particularly for recovering plant investment whose cost does not vary with usage.⁷⁴ The Commission acknowledged the economic inefficiency in using a metered cost recovery mechanism for non traffic sensitive plant investment which constitutes a

⁷³ See Access Charge Reform, CC Docket Nos. 96-262, 94-1, 99-249, 96-45, Sixth Report and Order in CC Docket Nos. 96-262 and 94-1, Report and Order in CC Docket No. 99-249, Eleventh Report and Order in CC Docket No. 96-45, 15 FCC Rcd 12962 (2000) (CALLS Order), *aff'd in part, rev'd in part, and remanded in part*, Texas Office of Public Util. Counsel v. FCC, 265 F.3d 313 (5th Cir. 2001), *cert. denied*, Nat'l Ass'n of State Util. Consumer Advocates v. FCC, 535 U.S. 986 (2002), on remand, Access Charge Reform, CC Docket Nos. 96-262, 94-1, 99-249, 96-45, Order on Remand, 18 FCC Rcd 14976 (2003). See also Cost Review Proceeding for Residential and Single-Line Business Subscriber Line Charge (SLC) Caps, CC Docket Nos. 96-262, 94-1, Order, 17 FCC Rcd 10868 (2002), *aff'd*, Nat'l Ass'n of State Util. Consumer Advocates v. FCC, 372 F.3d 454, 362 U.S.App.D.C. 87 (D.C. Cir. June 29, 2004).

⁷⁴ See also, Developing a Unified Intercarrier Compensation Regime, CC Docket No. 01-92, Further Notice of Proposed Rulemaking, 20 FCC Rcd. 4685 (2005).

large portion of a telephone company's sunk costs. In other words much of a carrier's investment does not vary with how much traffic traverses the network. For example, the cost of installing the first and last few feet of copper wire that links a residence with the local loop has a significant cost, but not one that varies as a function of how many calls originate and terminate on that wire.

Much of the cost incurred by carriers to achieve improved subscribership similarly does not vary with usage as compared to variables such as the number and density of subscribers taking service and the average distance of the local loop linking a subscriber with telephone company facilities. Accordingly, a minutes of use recovery system will overburden heavy users of interstate telecommunications services while recovering an insufficient contribution from light users whose local loop and network access still trigger the same carrier costs regardless of usage.⁷⁵

The FCC should replace the current minutes of use USF contribution regime and replace it with either general taxpayer underwriting, or a connection based system that applies to the physical links used to provide telephony and not the software applications that make voice telephony possible. Assuming the political unpopularity in adding over \$5 billion annually to the

⁷⁵ “[I]t does not appear that minutes-of-use are a significant determinant of costs given developments in telecommunications technologies. The Commission long ago recognized this with respect to loop costs, which are a function of subscriber density and choice of technology. [FN39] For similar reasons, it appears that switching costs are primarily a function of the number of subscribers, rather than the number of calls or MOU, because a reduction in call minutes per subscriber would not substantially reduce the investment and operating cost of the switch serving those customers, at least in the case of wireline networks.” Developing a Unified Intercarrier Compensation Regime, CC Docket No. 01-92, Further Notice of Proposed Rulemaking, 20 FCC Rcd. 4685, 4785-86 (2005).

national budget, a reformed user-financed USF system appears more feasible. A connection based regime determines the number of lines that a retail customer can use to receive or deliver a voice-based telephone call and divides the cost of USF pro rata.⁷⁶ Any subscriber of a service that can originate or terminate a call from or to a telephone handset should contribute to USF funding. This burden should extend to ventures that require only call terminations such as wireless to wireline network calls and vice versa. Additionally USF burdens should apply to any VoIP service that may originate via a DSL or cable modem and may transit the Internet, but which eventually routes through the conventional public switched telephone network to reach a conventional telephone handset.

This proposal may come across as controversial and unlawfully extending telecommunications service regulatory burdens on information services. However the FCC retains jurisdiction, under Title I of the Communications Act, to subject information service providers to limited regulatory responsibilities that serve the public interest.⁷⁷ Arguably shoring up the USF regime constitutes a reasonable, public interest serving objective.

Another short term strategy to achieve greater efficiency and cost saving in USF involves auctioning universal service subsidy access.⁷⁸ Rather than accept as a given the costs of an

⁷⁶ This type proposal appears to have gained traction as FCC Chairman Martin recently endorsed it as lawful Section 251 of the '96 Act, easy to administer, technologically neutral, understandable to consumers, supportive of numbering resource conservation and achievable without requiring new legislation. *See* Federal Communications Commission, Remarks by Chairman Kevin J. Martin to the NARUC Summer Meeting, Austin, TX (July 26, 2005); available at: http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-260312A1.pdf.

⁷⁷ 47 U.S.C. § 151 *et seq.*

⁷⁸ *See* Organization for Economic Co-operation and Development, DAC Network on Poverty Reduction, *Leveraging Telecommunications Policies for Pro-Growth Universal Access*

incumbent carrier operating in a high cost area, the FCC could auction access to USF to the carrier willing to provide service to a specific location with the least amount of subsidization. Currently a telecommunications carrier can become eligible to receive a fixed USF sum regardless of whether this carrier can operate more efficiently through, for example, the use of a cheaper and more efficient wireless network instead of a conventional copper wireline network. The FCC ⁷⁹ and many economists ⁸⁰ tout the benefits of auctions for radio spectrum licenses and

Funds with Minimum-Subsidy Auctions, DCD/DAD/POVNET(2004)13 (Oct. 22, 2004); available at: <http://www.oecd.org/dataoecd/57/56/33920168.pdf>.

⁷⁹ See, e.g., Implementation of Section 309(j) of the Communications Act - Competitive Bidding, PP Docket No. 93-253, Second Report and Order, 9 FCC Rcd 2348 (1994); Implementation of Section 309(j) of the Communications Act - Competitive Bidding, PP Docket No. 93-253, Second Memorandum Opinion and Order, 9 FCC Rcd 7245 (1994); Implementation of Section 309(j) of the Communications Act - Competitive Bidding, PP Docket No. 93-253, Third Report and Order, 9 FCC Rcd 2941 (1994); Implementation of Section 309(j) of the Communications Act - Competitive Bidding, PP Docket No. 93-253, Fourth Report and Order, 9 FCC Rcd 2330 (1994); Implementation of Section 309(j) of the Communications Act - Competitive Bidding, PP Docket No. 93-253, Fifth Report and Order, 9 FCC Rcd 5532 (1994); Implementation of Section 309(j) of the Communications Act -- Competitive Bidding, Narrowband PCS, PP Docket No. 93-253, Third Memorandum Opinion and Order and Further Notice of Proposed Rule Making 10 FCC Rcd 175 (1994); Revision of Rules and Policies for the Direct Broadcast Satellite Service, IB Docket No. 95-168, Report and Order, 11 FCC Rcd 9712 (1995); Amendment of Parts 2 and 90 of the Commission's Rules to provide for the Use of 200 Channels Outside the Designated Filing Area in the 896-901 MHz and the 935-940 MHz Bands Allotted to the Specialized Mobile Radio Pool, PR Docket No. 89-553, Second Order on Reconsideration and Seventh Report and Order, 11 FCC Rcd 2639 (1995); Rule Making To Amend Parts 1, 2, 21, and 25 of the Commission's Rules to Redesignate the 27.5-29.5 GHz Frequency Band, To Reallocate the 29.5-30.0 GHz Frequency Band, To Establish Rules and Policies for Local Multipoint Distribution Service and for Fixed Satellite Services, CC Docket No. 92-297, Second Report and Order, Order on Reconsideration and Fifth Notice of Proposed Rule Making, 12 FCC Rcd 12545 (1997); Amendment of Part 90 of the Commission's Rules to Facilitate Future Development of SMR Systems in the 800 MHz Frequency Band, PR Docket No. 93-144, First Report and Order, Eighth Report and Order, and Second Further Notice of Proposed Rule Making, 11 FCC Rcd 1463 (1995); Implementation of Section 309(j) of the Communications Act -- Competitive Bidding, PP Docket No. 93-253, Ninth Report and Order, 11 FCC Rcd 14769 (1996); Establishment of Rules and Policies for the Digital Audio Radio

even satellite orbital slots.⁸¹ The privilege to tap into USF constitutes a franchise of sorts that arguably more than one venture might have an interest in securing, especially for exurban areas that may eventually become more densely populated and profitably served.

Longer Term Challenges and Remedies

At some not too distant date communications, information and entertainment (“ICE”) technologies and markets will converge with the Internet serving as a central medium for access

Satellite Service in the 2310-2360 MHz Frequency Band, IB Docket No. 95-91, Report and Order, Memorandum Opinion and Order, and Further Notice of Proposed Rule Making, 12 FCC Rcd 5754 (1997); Amendment of the Commission’s Rules to Establish Part 27, the Wireless Communications Service, GN Docket No. 96-228, Report and Order, 12 FCC Rcd 10785 (1997); Amendment of Part 90 of the Commission’s Rules To Provide for the Use of the 220-222 MHz Band by the Private Land Mobile Radio Service, PR Docket No. 89-552, Third Report and Order and Fifth Notice of Proposed Rule Making, 12 FCC Rcd 10943 (1997); Promoting Efficient Use of Spectrum Through Elimination of Barriers to the Development of Secondary Markets, 18 FCC Rcd. 20,604 (2003); Dale N. Hatfield, *The Current Status of Spectrum Management*, in Robert M. Entman, Aspen Inst., *Balancing Policy Options in a Turbulent Telecommunications Market: A Report of the Seventeenth Annual Aspen Institute Conference on Telecommunications Policy*, 29 (2003) available at <http://www.aspeninst.org>; see also, See Omnibus Budget Reconciliation Act of 1993, Pub. L. 103-66, 107 Stat. 312 (1993) (codified at 47 U.S.C. § 309 (2000)). See generally Omnibus Budget Reconciliation Act of 1993, Pub. L. 103-66, 107 Stat. 312 (1993) (codified at 47 U.S.C. § 309). This Act explicitly gives the FCC the authority to grant licenses “through a system of competitive bidding.” 47 U.S.C. § 309(j)(1).

⁸⁰ See, e.g., Gregory L. Rosston & Jeffrey S. Steinberg, *Using Market-Based Spectrum Policy to Promote the Public Interest*, 50 FED. COMM. L.J. 87, 99-100 (1997); Symposium, *The Law and Economics of Property Rights to Radio Spectrum*, 41 J.L. & ECON. 521 (1998). Peter Cramton, *The Efficiency of the FCC Spectrum Auctions*, 41 J.L. & ECON. 727, 727-36 (1998); Pablo T. Spiller & Carlo Cardilli, *Towards a Property Rights Approach to Communications Spectrum*, 16 YALE J. ON REG. 53, 82 (1999); D. Daniel Sokol, *The European Mobile 3g Umts Process: Lessons From the Spectrum Auctions And Beauty Contests*, 6 VA. J.L. & TECH. 17 (2001); Thomas W. Hazlett, *The Wireless Craze, The Unlimited Bandwidth Myth, The Spectrum Auction Faux Pas, And The Punchline To Ronald Coase’s “Big Joke”: An Essay on Airwave Allocation Policy*, 14 HARV. J.L. & TECH. 335, 405 (2001).

⁸¹ See, Rob Frieden, *Balancing Equity and Efficiency Issues in the Management of Shared Global Radiocommunication Resources*, 24 U. PENN. J. INT’L ECON. L., No. 2, 289-327 (Summer, 2003).

and delivery. In such an Internet-centric environment, most voice services will become available with the launch of software. The concept of dedicated, identifiable voice network links will become an artifact of the past as efficient bit transport handles a variety of voice, audio, data, and video. An Internet-centric ICE environment will make it impossible to fund universal service programs based on interstate telecommunications minutes of use.

The FCC's conceptualization of telephone service and voice telephony also will have to change. People obviously will continue to make telephone calls, but such calls will constitute but one feature of a rich and diverse array of services available via broadband networks. Accordingly the FCC will need to devise a new and viable USF regime, despite the likelihood that carriers may not have the technical capability of metering their customers' long distance telephone minutes of use. Similarly, because broadband networks will have become the predominant medium for access and delivery of all ICE services, the FCC must consider universal service to include broadband packet delivery and not just voice services for residences and voice with some types of broadband services for schools, libraries and rural clinics.

The expansion of the USF mission to include broadband even as the core funding source all but evaporates surely will present challenges, but opportunities for a more effective and versatile universal service mission. To facilitate this broader and more diversified sense of the universal service mission, the FCC should allow constituencies the opportunity to apply for, and receive financial grants to pursue stand alone telecommunications and information processing projects in addition to, or in lieu of discounted carrier services. A grant seeking process, like that administered in Canada to stimulate rural access to telecommunications and information

processing services,⁸² allows constituencies to aggregate demand, to link geographically separate users and to provide services otherwise unavailable from commercial ventures. Canada and other nations have offered grants to community-based groups that delivery a variety of telecommunications and information processing services to many different users making it possible for “smart communities” in quite remote areas to have access to advanced services one would expect to be available exclusively in cities. Canada favors a bottom-up “community aggregator model” where government funding of programs and the delivery of electronic government services helps stimulate the generation of sufficient demand to use existing network capacity and stimulate the construction of new facilities.

Incumbent carriers, as historically guaranteed beneficiaries of USF, predictably would oppose any expanded opportunities for universal service end user beneficiaries to secure funding for network construction and possible self-provisioning of some telecommunications services. In several states and municipalities carriers have objected to community-based efforts to install and operate wireless data networks.⁸³ Some state governments have enacted laws that prohibit such community initiatives, or at least offer carriers the right of first refusal before allowing taxpayer

⁸² For background on Canada’s broadband initiatives *see* <http://www.broadband.gc.ca/pub/media/index.html>; *see also*, International Telecommunication Union, Workshop on Promoting Broadband, *Promoting Broadband: The Case of Canada*, Document PB/05 (April, 2003); available at: <http://www.itu.int/osg/spu/ni/promotebroadband/casestudies/canada.pdf>.

⁸³ Michael Rubinkam, Philadelphia to be blanketed by Wi-Fi hotspots by 2006, U.S.A. TODAY (Jan. 19, 2005); available at http://www.usatoday.com/tech/wireless/data/2005-01-19-philly-hotcloud_x.htm; James Dao, Philadelphia Hopes for a Wireless Lead, NEW YORK TIMES, A 18 (February 17, 2005); Lawrence Lessig, *Why Your Broadband Sucks*, 13 WIRED, No. 3 (March, 2005); available at: <http://www.wired.com/wired/archive/13.03/view.html?pg=5>.

financing.⁸⁴

One can appreciate carriers' opposition to taxpayer underwriting of telecommunications and information processing network as foreclosing private enterprise and risking substantial funds on a venture that may prove unsustainable and an undertaking for which community groups and governments might lack expertise in managing. However USF operates in an environment where marketplace forces will not achieve the kind of service availability, subscribership and prices elected government official believe would be optimal. If a community government or coalition of users seek to operate a telecommunications for information processing network, it is quite possible that no incumbent carrier offers or is willing to provision what the community appears to want.⁸⁵ Surely the universal service objectives contemplated by

⁸⁴ See, e.g., General Assembly of Pennsylvania, House Bill No. 30, An Act further providing for residential telephone service rates based on duration or distance of call and for local exchange service increases and limitations. Signed in the House and in the Senate, November 19, 2004. Approved by the Governor, November 30, 2004, text of law available at: <http://www.legis.state.pa.us/WU01/LI/BI/BT/2003/0/HB0030P4778.HTM>.

⁸⁵ Harold Feld, Gregory Rose, Mark Cooper and Ben Scott, *Connecting the Public: The Truth About Municipal Broadband* (April, 2005); available at: http://www.mediaaccess.org/MunicipalBroadband_WhitePaper.pdf; Public Knowledge, *Principles for an Open Broadband Future* (July 6, 2005); available at: <http://www.publicknowledge.org/content/papers/open-broadband-future> Cf. Adam Thierer, *Risky Business: Philadelphia's Plan for Providing Wi-Fi Service*, The Progress and Freedom Foundation, Progress on Point, Release 12.4 (April, 2005); available at: <http://www.publicknowledge.org/content/papers/open-broadband-future>; Thomas M. Lenard, *Wireless Philadelphia: A Leap into the Unknown*, The Progress and Freedom Foundation, Progress on Point, Release 12.3 (April, 2005); available at: <http://www.pff.org/issues-pubs/pops/pop12.3lenardwifi.pdf>; New Millennium Research Council, 'Not in the public interest'—*The Myth of Municipal Wi-Fi Networks* (Feb. 2005); available at: <http://newmillenniumresearch.org/archive/wifireport2305.pdf>.

Congress are served when a coalition of schools, libraries, government agencies, and rural clinics propose to aggregate demand for facilities and services and to achieve operational efficiencies by accessing their own quasi-public network rather than individually lease lower capacity lines at a higher per unit cost.

Conclusion

Technological innovations, declining USF revenue sources, telephone consumer compassion fatigue and changes in what a universal mission should support combine to make the current regime unsustainable. Internet mediation of telephone calls threatens the status quo by eliminating the distinction between local and long distance telephony and between voice and data services. Declining conventional dial up long distance telephone service revenues reduce the primary USF subsidy source thereby requiring an ever increasing contribution factor. An increasing number of consumers have noticed and become irritated by the USF contribution line item on their bill. VoIP provides consumers the opportunity to avoid making USF contributions and to reduce their long distance telephone calling expense.

The universal service funding mechanism must change and in doing so the FCC has an opportunity to ensure its financial viability, achieve operational efficiencies, and recalibrate the subsidy process while also expanding the universal service mission to include promoting broadband access in rural and high cost areas. Technological innovations increase the scope and diversity of what the telecommunications infrastructure can provide thereby raising the financial and social stakes when not everyone has the same access opportunities.

This paper has recommended that the USF have less to do with massive transfers of funds between user groups and more to do with ad hoc, project-specific funding designed to serve

community-based telecommunications and information processing requirements. The paper also has recommended a connection-based funding mechanism that spreads the financial burden over all carriers and consumers who benefit from access to networks that support voice services to telephones. The paper also has suggested that carriers compete for the privilege of tapping into USF subsidies in lieu of nearly automatic eligibility. Should Congress and the FCC act on these recommendations both carriers and coalitions of users can jointly and independently achieve success in satisfying specific requirements. Universal service improvements can more likely occur on a project-by-project basis instead of using a cross-subsidy designed primarily to sustain the status quo rather than achieve progress.