I. Introduction

The dream is a telecommunications future of fiber optic cables, computer keyboards, video cameras, tiny wireless personal communication systems, and interactive access to the world's information, art, culture, news and entertainment. This cornucopia of advanced telecommunications technology and services is being touted as the solution to many of today's most pressing social problems. And astonishingly, the magic word "competition" will transform the price of this electronic utopia to one which all consumers can easily afford.

But behind this dream is the regulatory reality: Reports, investigations, and legislation on all fronts promise much, but are sadly lacking on the substance of getting from today's regulated monopolies in telephone and cable television service to tomorrow's competitive, affordable utopia. This activity has raised many important questions about the development and regulation of the "information superhighway," but the answers to most have proven elusive. And one of the most intriguing unanswered questions is: "What do we do with universal service?"

To most people, the term "universal service" means the provision of basic telephone service at reduced price to low-income households which cannot afford to pay full price. In California, this mechanism is known as the Universal Lifeline Telephone Service (ULTS or "Lifeline"). However, such low-income subsidies are merely some of the more recent and visible features of universal service.

The term "universal service" was popularized by American Telephone and Telegraph (AT&T) President Theodore Vail as early as 1907. The closest thing to a federal mandate for universal service is found in Section 151 of the Communications Act of 1934. The Act authorized the Federal Communications Commission to regulate communications "so as to make available, so far as possible, to all the people of the United States a rapid, efficient, Nation-wide, and world-wide wire and radio communication service with adequate facilities at reasonable charges... for the purpose of promoting safety of life and property through the use of... communication." Historically, "universal service has meant widespread access to voice-grade telephone service, commonly referred to as 'plain old telephone service' (POTS)."

The goal has been "to give all Americans an opportunity to pick up the telephone and, at a reasonable cost, have a voice conversation with anyone else in the country or, increasingly, the world." Generally, defining a measure of universal service in the POTS era was relatively simple. Everyone should be allowed to receive basic telephone service at an affordable rate, regardless of their geographic location. And anyone who could not afford telephone service at the standard rate should be allowed the opportunity to obtain service at reduced rates. Traditionally, the cost of providing below-cost service to these groups has been recovered through various cross-subsidies created by above-cost pricing of long distance and business services.

Now that telecommunications services are about to move beyond the basic service benchmark, arguments are being advanced for the expansion of universal service, and its underlying subsidies, to include various additional enhanced services. Once again, there is the dream and the reality. Universal service must be expanded, according to the dream, to make the advanced services of the information superhighway available to the poor, those in remote areas, minorities, and the physically challenged. Put advanced services and technology in the hands of the information-poor and they will be poor no more!

The reality is that the concept of "universal service" was invented by AT&T as a marketing tool to woo regulatory protection as a monopoly and to sell more telephone service at an increased cost. Today's version of universal service is based upon a series of inefficient cross-subsidies which create deceptive pricing incentives and will be impracticable in a true competitive market. There is strong evidence that today's version of universal service is based on false assumptions, and has been ineffective for certain groups. Finally, universal service regulation, which is subject to manipulation by the Regional Bell Operating Companies (RBOCs), allows these companies to place the burden of the cost of developing advanced services on the consumers of residential service, without providing substantial benefits to these consumers in return.

This article will argue against the unnecessary expansion of universal service, and against additional or increased cross-subsidization practices. Part II explores the historical background of universal service, and develops the evolution of the term as a marketing tool of AT&T. Part III describes the economic underpinnings of the universal service subsidy system, and questions the viability of such a system in a competitive market. Part IV explores the past track record of traditional universal service, while Part V sketches the acknowledged benefits of universal service.

Lastly, Part VI presents a set of proposals to guide regulatory agencies in shaping the future of the universal service concept in competitive telecommunications markets. These guidelines center around a shift in focus from universal service to universal access to all communications services. The best way to promote universal access goals is to set baseline standards of connectivity, interopera-
ability, and openness to which all service providers must adhere in order to participate in the market. All market participants must bear the cost of providing essential services to special groups (e.g., low-income, geographically remote, physically challenged). Furthermore, all market participants should be held to baseline security, privacy, and service quality standards, and must disclose accurate pricing information and provide other relevant education to enable consumers to fairly choose from competing services.

Finally, as regulation diminishes to allow competition, service providers should be subject to heightened antitrust scrutiny, to ensure that anticompetitive practices (such as predatory pricing, price-fixing, cartel conduct, and anticompetitive mergers) are avoided.

II. A Brief History of Universal Service

Although Theodore Vail was the first to popularize the expression,21 Alexander Graham Bell should be credited with first articulating the dream of universal telephone service.22 While promoting his new invention in 1877, he correctly predicted that “a telephone in every house would be considered indispensable.”23 In 1878, Bell further described his vision: “[i]t is conceivable that cables of telephone wires would be laid under ground, or suspended overhead, communicating by branch wires with private dwellings, counting houses, shops, manufactories, etc., uniting them through the main cable with a central office...Not only so but I believe in the future wires will unite the head offices of telephone companies in different cities, and a man in one part of the country may communicate by word of mouth with another in a distant place.”24

Bell’s small company grew quickly and, after reorganization in 1878, Theodore Vail was named general manager and became the company’s driving force.25 Vail’s vision of universal telephone service evolved to “one system, one policy, universal service.” To Vail, this concept meant the interconnection of local exchanges by long distance service.26 Vail clearly contemplated a service in which “universal” implied everywhere, rather than everyone.27

The early development of the telephone industry supports this view. After Bell began selling his invention in 1877, a patent dispute quickly arose with Western Union, which had already patented a similar invention.28 A settlement between the two companies in 1879 gave Bell’s company a virtual monopoly over telephone technology for 17 years.29 During this period, telephone service rates could be set at levels considerably above marginal cost, without regard for the entry incentives created. In fact, it is possible that the structure of the system caused the retail price to be higher than the profit-maximizing price because telephones were rented to subscribers at monopoly prices, and connection charges were also computed at monopoly rates.30 This structure during the patent monopoly period was responsible for an initial rapid increase in telephone service, followed by a slow increase once equilibrium was reached.31 These reduced demand levels during the latter years of the patent period were probably caused by Bell’s anticompetitive pricing of telephone rates. Furthermore, development concentrated in the cities, with little effort given to rural lines or small towns. Monopoly pricing, combined with the Bell company’s lack of interest in attracting residual and rural customers, created a reservoir of unsatisfied demand and a strong inducement for entry of new firms after the patent protection expired.32

The Bell company achieved one major benefit from the patent monopoly period which gave it a distinct advantage over potential competitors once the patent expired. This period enabled the company to establish a strong telephone network which, unlike the telephone itself, was a strong barrier to new entry:

The telephone instrument itself has few natural barriers to entry. There are no significant economies of scale in telephone set manufacturing and many companies had the technological ability to produce the sets....The temporary patent monopoly on telephone sets allowed Bell to establish a monopoly of telephone exchange service in which much greater natural barriers to entry existed.33

However, when the initial patents expired in 1894, Bell experienced a period of intense competition from many independent companies. In 1895, there were 252,000 telephones subscribers in the United States, representing an overall penetration rate of less than 5%.34 Only 10% of these telephones were used by residential subscribers, and less than 3% of all telephone subscribers were in rural areas. By 1920, after 25 years of competition, these figures had changed dramatically. There were over 13 million telephones in the United States, representing an overall penetration rate of 12.69%. However, 55% of these telephones were residential, and the penetration in farm households had risen to 38.7%. In certain states, rural telephone penetration had increased dramatically—for instance, Iowa had a rural penetration rate of over 86%.

The competition which arose around the turn of the century has been described as “access competition.”35 Primarily because AT&T36 refused to authorize its subsidiaries to interconnect with competing firms, the concept of “dual service” became prevalent. In this arrangement, companies competed to be the first to sign up subscribers for service. The telephone system with the most subscribers became the most attractive system, because more people could be reached. While most observers have condemned dual service competition as destructive competition,37 this arrangement created three powerful incentives to universality: (1) it rewards the first to establish telephone exchanges in unserved areas; (2) it creates pressure to make the price of service as low as possible, so as to attract new subscribers and draw away subscribers from the other system; and (3) it rewards those who interconnect local exchanges with toll lines as quickly and as extensively as possible.38

These incentives may help to explain the rapid penetration of telephones in rural areas during this period. One example was the development of “farmer lines,” systems of “informally organized telephone lines to connect the farmers of an area.”39 These consisted of “a single line in which all conversations reached all subscribers or multiple lines with a simple switchboard operated by one of the farm families.”40 These systems were relatively inexpensive to construct, and were a quick and efficient method of filling the demand for rural telephone service. Once developed, these systems became attractive buy-out targets for AT&T and the independents because their acquisition would quickly and cheaply expand the company’s subscriber base.41

Initially, AT&T’s strategy to combat the intense competition which followed the initial patent period expiration consisted of four elements: (1) developing and patenting new technology to foreclose competition; (2) cutting prices for service; (3) developing long distance service to interconnect its local systems, while denying competitors access to its network; and (4) attempting to purchase or merge with competing services.42 The ensuing rash of attempted mergers, com-
bined with concerted refusals to allow long distance connections with competing firms, drew the attention of both state and federal regulators. Some states had begun regulating telephone rates as early as 1876. By 1910, all but a handful of states had enacted statutes regulating telephone service, and state antitrust action had succeeded in preventing some mergers and establishing limitations on AT&T's conduct toward the independent companies.

In 1910, Congress enacted the first federal telecommunications statute, giving the Interstate Commerce Commission jurisdiction over the industry. Additionally, AT&T entered into an agreement with the U.S. Department of Justice in 1913 to refrain from acquiring directly competing companies without prior Department approval. This arrangement was known as the Kingsbury Commitment, because it was set forth in a letter from AT&T Vice President N.C. Kingsbury to J.C. McReynolds, U.S. Attorney General. However, mergers continued after 1913 at a reduced rate.

Under increasing antitrust scrutiny and the threat of more oppressive regulation, Vail changed his strategy and began to "embrace regulation rather than fight it.

By accepting regulation voluntarily, Bell reduced the risk that unfavorable regulation would be imposed. The system of competing federal and state regulation, together with the complex Bell structure, prevented real regulatory control while providing the protection and legitimacy of a regulated utility. Vail was...happy to accept regulation rather than fight it.

Once it gained monopoly status, AT&T developed a pricing policy that did provide the opportunity for every United States household to acquire telephone service at a reasonable cost. Known as "nationwide average pricing," this policy based the price of all calls on distance between parties, not on cost of the service. In addition, local and long distance pricing and revenue recovery methods were "separated," and long distance revenues were pooled and repaid to local exchange carriers in proportion to their costs as "settlement" payments. These and other methods of subsidizing local service became known as "separations and settlements." However, these practices are economically inefficient, and could only have developed in a monopoly market.

Beginning in the late 1960s, AT&T came under increasing pressure to accept new competition for long distance service. Its cross-subsidy practices quickly became the basis of its "universal service" argument against allowing competition for long distance service.

In the end, competition for long distance service won out over AT&T's argument. But today, as competition for local service is poised to descend on the RBOCs' monopolies, the universal service rallying call has suddenly resurfaced. However, this time, the term is neither a call for a centralized telephone system nor a defense of the regulated monopoly system, but a mandate for subsidizing a host of new services and technologies in a new competitive environment. To fully understand this new treatment of the term "universal service," it is necessary to understand the mechanics of subsidized pricing of local service under the current regulated monopoly structure.

III. The Mechanics of Universal Service

The goal of a telephone company manager is to earn enough revenue from services offered to cover costs and return a profit to the company's owners (i.e., the investors). In a competitive market, the threat of price competition restricts the amount of profit that can be earned. Additionally, antitrust law protects new entrants and competitors with smaller market shares from anticompetitive practices by those competitors with larger market shares. In a regulated monopoly market, there is no competition; however, the amount of profit is limited by both state and federal regulation.
public utilities commission, in an effort to simulate a competitive environment. Rather than establishing rates based solely on recovery of sunk investment and marginal cost, regulators set rates with other socially desirable goals in mind. Because there is no competition, certain services may be priced higher than their cost; these "monopoly" profits may then be used to subsidize other services so that they may be priced lower than cost. Such cross-subsidies would not be possible in a competitive market, because competitors would undercut the price of the above-cost service and steal customers from the utility. This would in turn make it impossible to provide the subsidized service at below cost, because the revenues required to support the lower prices would disappear.

Universal service goals have traditionally been funded through a variety of such price discrimination practices. Generally, certain groups of customers are provided basic service at a price that is less than the cost of the service, to encourage the universal availability of basic service to these groups. Of course, this means that other services are priced above their respective costs.

These subsidies came to flow in familiar directions: from long-distance service to local service, from business services to residential services, and from urban ratepayers to rural ratepayers. Once in place, the system of subsidies was an additional reason not to permit competition, since low-cost competition could destroy the telephone companies' higher-priced services and the politically popular subsidies they provided to basic services.

One of the prevalent price discrimination strategies is geographic averaging. Consider two customers—one lives next door to the phone company, while the other lives on a distant farm one mile from the nearest telephone line. Under geographic averaging price structures, both will pay the same price for local service. "Under this policy, the farmer will not pay the full cost of his mile-long access line; instead, he will pay the same rate as the customer who lives across the street from the central office. The farmer's access line is subsidized by the urban ratepayer." Another example of price subsidy in telephone service is value-of-service pricing. Above-cost rates are imposed on business customers and the surplus is used to subsidize basic, residential service. "The rationale is that the business customers...derive substantial economic benefit from their telephones, while residential subscribers do not."

A third type of subsidy involves the payment by long distance carriers of settlement fees to local exchange carriers (LECs). Generally, the LEC receives a portion of all long distance revenues as reimbursement for access to the local "bottleneck" to connect long distance calls. These payments have traditionally subsidized the cost of local service.

Each of these methods of subsidizing services is subject to erosion in a competitive market. The competitor simply prices the above-cost service at its marginal cost, and attracts those customers away from the telephone company. The telephone company is forced to lower its prices, which causes the subsidy funding to disappear. Then it must raise rates for the subsidized service in order to recover its costs for that service.

Another problem that exists with cross-subsidy activity is predatory pricing. A producer, by setting the price of competitive services below cost, may be able to force competitors out of the market. Commentators have long debated whether predatory pricing is ever economically feasible in an unregulated market, and courts are generally skeptical of predatory pricing claims. The U.S. Supreme Court has declared that "such claims are rarely tried and even more rarely successful."

However, in a market where one firm offers both regulated monopoly services and related competitive services, this practice could conceivably be used to drive competitors out of business. The firm merely allocates the deficit incurred from selling the competitive product at below cost to the expense side of the ledger for the regulated service, then petitions the regulatory entity for a price increase based on the spurious expense data. The regulator grants the price increase, but the regulated service is now priced above-cost, and the additional revenues in effect subsidize the predatory-priced product.

Finally, one more practice which may affect both competition and universal service subsidies deserves mention. Because it may not be feasible to construct multiple telecommunications networks to serve the same customers, the LECs may be required to sell access to their "bottleneck" local networks to competing service providers. The LEC may be tempted to price such interconnection fees higher than the cost it incurs to deliver the same service. This would be anticompetitive, because it would allow the LEC to keep the competition's costs of providing the service higher than its own. Antitrust law attempts to preclude such practices through the requirements of the "essential facilities doctrine." This doctrine provides that where a firm controls a resource that cannot practicably be duplicated by competitors, and without which competition is infeasible, the firm must make that resource available to competitors on reasonable terms and conditions. Therefore, when competing service providers must utilize the local network to reach the consumer, LECs must allow this interconnection at the same price that it costs the LEC to deliver the same service.

In sum, a universal service system which relies upon artificial cross-subsidies cannot exist in a fully competitive market. Competition does not allow assured profit from one population which may simply be transferred to support another. In order to retain universal service, a regulatory regime must be interposed in a newly-competitive market—but is universal service worth the price? To answer this question, we must look at the track record of universal service to determine whether its benefits outweigh the costs of regulation.

**IV. Has Universal Service Been Effective?**

"Universal service" has become an umbrella term for a variety of subsidy mechanisms designed to get telephones into the hands of the most people. With the impending telecommunications "revolution" of advanced services and the introduction of competition at all levels of service, this model of ensuring access to all is being questioned. In addition to the points already raised in Parts I (that universal service is primarily a marketing tool of the RBOCs) and II (that the subsidy framework is economically inefficient in a competitive market), three other reasons justify a reexamination of universal service.

First, there is evidence that the present system of promoting universal access to basic telephone service has not been as effective as advertised. It is common to treat the goal of universal service as fully realized, but in fact many households still lack basic telephone service. Approximately six million households in the United States do not have a telephone. This is about 6.7% of all United States households. However, these percentages increase substantially for low-income and minority households and households headed by those under 25 years of age. Two-thirds of households...
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The universal service regime is that it can be—where the LECs attempt to use cross-subsidies to engage in predatory pricing. Another abuse results when the LEC diverts revenues from basic, residential service to subsidize the research and development of advanced plant and services. This practice effectively cheats the basic service ratepayer, who probably will receive no corresponding benefit from the newly developed services.

In an unregulated, competitive market, a firm cannot simply raise prices to fund new development. It must either use capital on hand or raise additional capital through the debt and equity markets. The investors in the company share the risk that the new development will fail, and will share any profits if it is successful. If, however, a monopoly utility funds new development through increases in basic service rates, the ratepayers take on the risk of the investment. If the investment is successful, the company may be tempted to pass the increased earnings directly to its investors, thus denying the ratepayers a return on the investment.

Recently, the California Public Utilities Commission determined that Pacific Telesis did just that, when it attempted to "spin off" its cellular and paging division without returning some of the profit from the sale to ratepayers. The Commission determined that Telesis had funded its research and development of cellular service with ratepayer revenues, and that some of these revenues should be returned to the ratepayers. It would be easy to envision an LEC being equally tempted to finance the development of an advanced, broadband network through increases in basic service rates, then pricing the service so that it may be unaffordable for the ratepayers who have funded it.

V. Balancing the Costs and Benefits of Universal Service

So, one might ask, if universal service is simply a self-serving marketing tool of the telephone companies, incompatible with competitive markets, and in many cases simply does not work, then why not do away with it? In fact, some have argued that universal service should be abandoned in favor of other more modernistic approaches to service access. However, traditional universal service has served an important role in telecommunications development, and its continued presence is supported by several meritorious arguments.

First, there is an undoubted need for universal access to basic telephone service. Telephone and related technology has become an "indispensable life-saving tool[1] during the twentieth century." It gives individuals the ability to quickly connect with emergency assistance, medical care, essential business and professional services, and cultural and societal contacts. Moreover, it is vital to advancing the democratic process and the fundamental rights of free speech and association.11

There well may be certain advanced services that will, at some point in the future, achieve the degree of importance to society that basic service currently has achieved. If and when this occurs, there will be a justifiable need to provide such advanced services to socioeconomic groups who normally would not be able to afford them.

Second, basic service will likely continue to be unavailable to certain groups, absent some form of support mechanism. The lowest income groups will not be able to afford any cost-based service, even if driven to the lowest possible price by competition. Also, certain individuals in remote or poverty-stricken areas may be denied service because it is not commercially viable to provide service to those individuals. To the extent such "electronic redlining" occurs, it must be resolved through a support mechanism. Finally, specialized equipment required by physically disadvantaged individuals may require a subsidy to enable such equipment to be universally available to them.

Third, the need for some framework for consumer protections will arise out of the transition from a regulated telecommunications market to competitive telecommunications market. In the past, consumers have relied upon regulatory entities to protect their interests in fair pricing and marketing practices, service quality, network security, and privacy. But as competition increases and regulation shrinks, the importance of protecting the consumer in these interactions will arguably fall under the universal service umbrella. In the future, consumer safeguards should be implemented, particularly in the transition from regulated market to competitive market. These safeguards should be universally available.

Finally, as the "information superhighway" unfolds, there will be a need for adequate education to show all individuals the importance of advanced services and the procedures for appropriately and efficiently using them. The importance of closing the information gap has already been mentioned. It will also be essential for consumers to have
access to educational assistance to better
avoid potential abuses which might arise
due to the competitive nature of the tele-
communications market. Consumers will
require some method of obtaining infor-
mation—not only concerning pricing and
service quality of competing services, but
also to enable them to avoid potential
abuses such as excessive charges or un-
knowing risks to the security and privacy
of the information they transmit through
these new services.

Conceding that some guarantee of
baseline universal service standards is
required, and assuming that the current
universal service regime will be unac-
ceptable in a competitive telecommunications
market, several commentators
have developed an alternative to the tra-
ditional model of universal service. The
final part of this article discusses a
proposed “universal access” model for
establishing baseline access guarantees
and consumer protections, while ensur-
ing unfettered competition.

VI. The Universal Access Model

An alternative approach to the tradi-
tional universal service model is the con-
cept of universal access. Instead of
mandating that specific services be made
available at certain prices, universal ac-
cess regulation would simply require that
whatever services are available be made
available to all on a nondiscriminatory
basis. Then, if certain groups, such as
low-income families, remain unable to
afford some or all of the services offered,
targeted assistance programs would be in
place to encourage these at-risk groups
to subscribe to those services that are es-
sential to participation in society. To
avoid difficult choices regarding the “es-
sential” nature of services, any service
to which at least 51% of all residential
customers subscribe should be considered
“essential” to participation in society.

Next, the universal access model would
require that providers of the actual tele-
communications connection, or the
“wire” into the home, would be sepa-
rated or “unbundled” from providers of
the content that is being offered through
the “wire.” Service providers (those who
provide the “wire”) would be regulated as
common carriers, and would be
subject to a set of service standards and
consumer safeguards, including privacy
and security standards. Content provid-
ers would then be substantially dereg-
rated and free to compete aggressively,
subject to strict antitrust scrutiny to min-
imize anticompetitive practices. Both
service providers and content providers
would be required to support public ed-
ucation and training mandates, and to
disclose accurate price and service infor-
mation for comparison by consumers.

The universal access model stresses
equal access to all services. The driving
force of the universal access model is com-
petition, not government regulation of a
monopoly provider. In order to promote
equality of access, however, certain base-
line standards must be established. The
Alliance for Public Technology (APT) has
developed a set of specific actions and
approaches which serve as the basis for
the following guidelines. The APT’s
approach would require any telecommu-
nications service provider to meet the fol-
lowing guidelines in order to enter the
market: (1) specified connectivity, inter-
operability, and openness standards; (2)
specified service quality, security, and pri-
vacy safeguards at no additional cost to
consumers; and (3) mandatory contribu-
tions to a “universal service” fund, which
would be administered by an entity which
itself is not a provider.

To ensure universal access, advanced
telecommunications services must be
fully accessible to everyone. This con-
cept has been expressed as connectivity.
The network should connect every home,
school, library, business and health care
provider. To the extent that the com-
petitive market fails to provide such con-
nectivity, targeted incentive programs or
regulation may be necessary to promote
optimum connectivity. There is evidence,
however, from the historical development
of the existing telephone system that
competition will not fail in the goal of
universal connectivity. Widespread avail-
ability of telephones to rural areas oc-
curred only after AT&T lost its patent
monopoly. At that time, competing ser-
dices developed low-cost “farmer lines”
and other methods of serving rural resi-
dents. There is evidence that this may
already be occurring today with rural ac-
cess to electronic mail and the Inter-
net.

Another requirement of the universal
access model is that all services be inter-
operable. If competition is to be success-
ful, it is essential that users of different
or competing networks be able to inter-
connect. It was in part the refusal of
AT&T to allow competing companies to
connect to its system which led to the calls
for regulated monopoly treatment. The
Clinton administration’s National Infor-
mation Infrastructure report has recognized
the importance of full interoperability.
Again, in the interests of reaching the
most customers, competition should cre-
ate incentives to encourage interconnec-
tion of competing services; however,
uniform national or international techni-
cal standards should be developed and
implemented to facilitate this require-
ment.

Related to the idea of interoperability
is the concept of openness. Openness is
essential to universal access for two rea-
sons. First, the system should be capable
of both sending and receiving all types of
information. Second, the technol-
ogy relied upon by these service provid-
ers must create an open network, to allow
the full implementation of interoperabil-
ity and connectivity goals. Therefore,
both services and networks must be open
and available to all.

Another element of APT’s universal
access model is the incorporation of the
consumer safeguards of security, service
quality, and privacy. Specific baseline
standards should be mandated by the
federal government, available to all users
on an equal basis. Consumers should not
be forced to pay more for these funda-
mental standards. Consumers should also
be made aware of what they should ex-
pect from services in this regard.

The competitive market should be al-
lowed to function as freely as possible,
without interference from the govern-
ment. Existing internalized cross-subsidy
practices should be dismantled in favor
of cost-based, competitive pricing. Only
where there is a specific market failure
should service be subsidized, and then
the subsidy should be an external cost
absorbed proportionately by all market
participants.

One area where targeted subsidies will
be required is to ensure that low-income
individuals have adequate access to any
service which at least 51% of all resi-
dential customers have adopted. The APT
suggests that all telecommunications pro-
dviders contribute to a universal service
fund, which would be used to provide low-
cost service to low-income individu-
als. These contributions should be al-
located according to the market share of
the individual provider. The fund should
be administered by an entity which is not
itself a service provider. These subsi-
dies might take the form of credits or
vouchers which could be used to pay for
the services. Additionally, a portion of this
fund should be earmarked for public ed-
ucation for low-income, minority, and
physically impaired groups. Education
should be provided at no cost, and should
focus on the value of basic information
services to these groups.

The universal access model is based on
a competitive market. Competition re-
quires reduced and uniform regulatory oversight. However, it is important to ensure that none of the competing service providers be allowed to obtain an unfair competitive advantage. Therefore, two mechanisms should be implemented to ensure fair competition and minimize consumer abuses.

First, service providers must be regulated as common carriers. This will ensure that all users are able to originate, as well as receive, communications. It will also require that the carrier itself be separated or "unbundled" from the actual content of the information provided. Telephone service is currently provided on a common carriage basis, although the RBOCs are lobbying to be allowed to provide content as well, especially with regard to video programming.146 Cable television is not currently based on a common carriage system; cable franchising may pick and choose their programming content. Some commentators have suggested that cable television operators be treated as common carriers as well.147

Second, the entire telecommunications industry should be subject to heightened antitrust scrutiny in return for reduced regulation. Service providers should be monitored closely for anticompetitive practices, because the high costs of network infrastructure will make new entry difficult and will likely reduce the total number of competitors to a few. Thus the likelihood of price-fixing, predatory pricing, and denial of access to essential facilities will increase.148 Also, the possibility of anticompetitive mergers and acquisitions must be recognized. Service providers who also provide content must be scrutinized to prevent unfair tying agreements or predatory pricing.149

For content providers, new entry will be easier, so there will likely be more competitors and healthier competition. However, the opportunity for mergers and consolidations to create an oligopoly market exists. Again, antitrust scrutiny must be vigorous to ensure that content providers maintain a competitive market.

VII. Conclusion

The telecommunications market is very complex and difficult to comprehend. Apart from those set forth here, other safeguards may be necessary to ensure universal access to the full panoply of new age communications services that the information superhighway promises to deliver. However, it is essential that adequate safeguards be developed now, before the new infrastructure is in place. Once these new services are accepted by consumers, it will be much more difficult to place limitations on them.

The ability to communicate freely is a fundamental right in the United States, and a cornerstone of our democratic society. The telecommunications revolution has the potential to create fascinating new ways to advance the interests of democracy. But unless advanced telecommunications technology is handled properly, with appropriate standards for universal access and consumer safeguards, this potential could reduce or even evaporate our present ability to communicate freely. It would be sad indeed to waste such a rare opportunity.

ENDNOTES


2. See NII: Agenda for Action, supra note 1, at 5. This report predicts that the information superhighway will improve public schools and health care, reduce traffic congestion, improve access to government information and services, improve business efficiency, make the vast resources of art, literature, and science available everywhere, increase access to home entertainment, and reduce paperwork.

3. See Alexander C. Larson, An Economic Guide to Competitive Standards in Telecommunications Regulation, 1 COMMMLAW CONSPECTUS 31, 33 (1993) ("[i]ndeed, with the possible exception of the phrase 'level playing field,' 'competition' is probably the most pervasive, yet debated term used of late to advance telecommunications public policy").

4. See, e.g., NII: Agenda for Action, supra note 1; see also California Public Utilities Commission, Enhancing California's Competitive Strength: A Strategy for Telecommunications Infrastructure (Nov. 1993).


7. See generally Information Studies, supra note 1; Susan G. Hadden, Extending Universal Service Through the National Information Infrastructure, COMM-LAW CONSPECTUS 17 (Spec. Iss. 1994) (hereinafter "Hadden"); Senator Larry Pressler & Kevin V. Scheiffer, A Proposal for Universal Telecommunications Service, 40 Fed. COMM. L.J. 351 (1988) (hereinafter "Pressler & Scheiffer"); John Browning, Universal Service (An Idea Whose Time Is Past), WIRED, Sept. 1994, at 102 (hereinafter "Browning"). As this article was being written, the California Public Utilities Commission (PUC) issued a set of proposed universal service rules aimed at protecting universal service goals in competitive markets. The proposed rules establish a defined set of "basic" services (subject to a periodic, three-year review), revise existing universal service subsidies for low-income and rural customers, create a procedure to designate a "carrier of last resort" to ensure that basic service is provided to all customers, and mandate disclosure of certain pricing information to customers. California Public Utilities Commission, Rulemaking on the Commission's Own Motion into Universal Service and to Comply with the Mandates of Assembly Bill 3643, D.95-07-050 (July 19, 1995) (hereinafter "PUC Proposed Universal Service Rules"). The Commission has circulated these proposed rules for public comment, but has not formally adopted them at this writing.

8. Lifeline service subsidies were established by the Moore Universal Telephone Service Act, CAL. PUB. UTIL. CODE § 781 et seq. (formerly §739.2, enacted in 1983).

and 1920, American Bell Telephone Company compiled the figures in the text as the average annual return on investment for Bell stockholders during this period was 46%. Id. 12. Notice of Inquiry, supra note 5, ¶ 1. 13. Id. 14. See CHARLES H. KENNEDY, AN INTRODUCTION TO U.S. TELECOMMUNICATIONS LAW 12-14 (1994) (hereinafter “Kennedy”). 15. Notice of Inquiry, supra note 5, ¶ 26 (“[w]itnesses at [Department of Commerce] field hearings suggested that universal service encompass a host of different services, including: access to a basic set of information and telecommunications services; multiple languages, including Spanish and Native American languages that require special, non-ASCII characters; set-aside resources, facilities, and capacity for public, education, and government training and use; new technologies such as video link and cellular telephone service; and services defined as characteristics or features, rather than technologies”) (footnote omitted). 16. GERALD W. BROCK, THE TELECOMMUNICATIONS INDUSTRY 151 (1981) (hereinafter “Brock”); see infra discussion in Part II. 17. See infra discussion in Part III. 18. See infra discussion in Part IV. 19. The RBOCs are the seven regional Bell companies which were divested from AT&T under the 1984 consent decree, discussed infra at note 63. 20. See infra text accompanying notes 109-11. 21. Brock, supra note 16, at 102. 22. Herbert S. Dordick, Toward a Universal Definition of Universal Service, in Information Studies, supra note 1, at 109 (hereinafter “Dordick”). 23. Id., citing ROBERT W. GARNET, THE TELEPHONE ENTERPRISE: THE EVOLUTION OF THE BELL SYSTEM’S HORIZONTAL STRUCTURE 12 (1985). 24. Id., citing ETHIEL DE SOLA POOL, THE SOCIAL IMPACT OF THE TELEPHONE 156-57 (1977). 25. Brock, supra note 16, at 94. 26. Dordick, supra note 22, at 112. 27. Id. 28. Brock, supra note 16, at 89-90. 29. Id. at 95. 30. Id. at 107. Brock notes that the average annual return on investment for Bell stockholders during this period was 46%. Id. 31. Id. 32. Id. 33. Id. at 123-24. 34. Mueller, supra note 9, at 356. Mueller compiled the figures in the text from the national censuses of 1890, 1900, and 1920. American Bell Telephone Company Exchange Statistics, and AT&T-Bell Labs Archives. 35. Id. at 357-58. 36. Id. at 358. 37. American Telephone and Telegraph became the parent company of American Bell Telephone Company in 1900. Brock, supra note 16, at 118. 38. Mueller, supra note 9, at 358; see also Pressler & Schieffer, supra note 7, at 356 n.13 (“[d]uring this period, some cities had as many as three telephone exchanges, all with independent networks and facilities. In order to communicate with all the other telephone customers in such a city, three telephones were required—each with independent lines running from the telephone to each of the independent exchanges”). 39. Mueller, supra note 9, at 359. 40. Brock, supra note 16, at 111. 41. Id. 42. Mueller, supra note 9, at 361 (observing that these farm lines became a highly sought-after prize, as they were wooed by both AT&T and independent companies for interconnection agreements). 43. Brock, supra note 16, at 114. 44. See Pressler & Schieffer, supra note 7, at 357-58; Brock, supra note 16, at 151-58. 45. Pressler & Schieffer, supra note 7, at 357. Evidently, Connecticut became the first state to enact a statute regulating telephone service. Id., citing 1879 Conn. Spec. Acts 36. 46. Brock, supra note 16, at 154. 47. Mann-Elkins Act, ch. 309, 36 Stat. 539 (1910) (repealed 1934). See Pressler & Schieffer, supra note 7, at 358. 48. Brock, supra note 16, at 155. 49. Id. at 156. 50. Id. at 158. 51. Id. at 161. 52. Mueller, supra note 9, at 363. 53. Id. at 363-64. 54. Id. (footnotes omitted). 55. Willis-Graham Act, ch. 20, 42 Stat. 27 (1921) (repealed 1934). 56. See Mueller, supra note 9, at 365; Pressler & Schieffer, supra note 7, at 358. 57. 47 U.S.C. § 151 et seq. 58. See Pressler & Schieffer, supra note 7, at 358-59. 59. Mueller, supra note 9, at 366. 60. Dordick, supra note 22, at 115. 61. Mueller, supra note 9, at 354. 62. See infra Part III for full discussion of the economic aspects of cross-subsidy pricing. 63. A comprehensive discussion of the events which led to the AT&T consent decree, also known as the Modified Final Judgment (MFJ), is beyond the scope of this article. Briefly, in 1974, the U.S. Department of Justice brought suit against AT&T under section 2 of the Sherman Act, alleging conspiracy to monopolize three telecommunications markets: intercity telecommunications services, customer-provided equipment, and telecommunications equipment. United States v. American Tel. & Tel. Co., No. 74-1698 (D.D.C. filed Nov. 20, 1974). A settlement was reached in 1982 whereby AT&T agreed to divest its RBOCs and their local service networks, in exchange for the court’s modification of a 1956 court decision known as the Final Judgment (United States v. Western Elec. Co., 1956 Trade Cas. (CCH) 68.246 (Jan. 24, 1956)). This modification allowed AT&T to enter into unregulated activities such as computer equipment manufacturing and data processing. See generally Pressler & Schieffer, supra note 7, at 364. The MFJ also placed several limitations on the RBOCs, including a requirement that they provide equal access to their facilities to all providers of long distance service, and prohibiting them from participating in certain lines of business. Id. at 365; citing United States v. Western Elec. Co., 569 F. Supp. 990, 994 (D.D.C. 1983). Many of these line-of-business restrictions have since been eliminated. See Kennedy, supra note 14, at 50. 64. This argument was set forth in a report submitted to Congress by Eugene V. Rostow on behalf of AT&T in 1975. The Rostow report argued that a monopoly system devoted to universal service was part of the mandate of the 1934 Communications Act. However, Mueller correctly notes that this claim is “specious.” Mueller, supra note 9, at 367. The Communications Act contains no direct reference to universal service. 65. Id. (footnote omitted). 66. In California, the PUC has opened the door for facilities-based local competition starting January 1, 1996, and for bundled resale local competition as of March 1, 1996. California Public Utilities Commission, Order Instituting Rulemaking on the Commission’s Own Motion into Competition for Local Exchange Service, R.95-04-043 (July 24, 1995). To date, however, few companies have expressed interest in competing for local service for residential customers. 67. A comprehensive explanation of the economic analysis of monopoly versus competitive markets is beyond the scope of this article. For an excellent treatment of this topic, see Kennedy, supra note 14, at 119-54. The following
discussion draws heavily upon the concepts discussed therein.

68. For example, if one producer sets the price of his product higher than its cost to produce, one of two things will happen. If competitors already offer a substitutable product, they will price it less than the producer's price, thus increasing their sales and decreasing the producer's market share. If no substitutable product is available, incentives are created for potential competitors to enter the market, to take advantage of the excessive profits earned by the producer. In either case, the producer will be forced to lower prices to avoid losing market share. In a perfectly competitive market, all producers will price their product at or very near its cost to produce. Id. Of course, this analysis assumes that no market flaws exist, such as high barriers to entry, imperfect pricing or cost information, external costs, or cartel behavior.

70. The two most popular forms of rate regulation are rate of return rate regulation and price cap or incentive regulation (currently called "performance-based ratessetting" in California). A discussion of these regulatory regimes is beyond the scope of this article. See id. at 6-7, 14-17.

72. Notice of Inquiry, supra note 5, ¶ 34.

73. Id.

74. Kennedy, supra note 14, at xvii.

75. Id. at 12-13.

76. Id.

77. Id. at 13.

78. Id.

79. Mueller, supra note 9, at 354. A local exchange carrier (LEC) is simply the telephone company who provides local service, usually a RBOC.

80. There is some dispute over the extent to which local service is subsidized by these settlement payments. Estimates range from $400 million to $20 billion. Notice of Inquiry, supra note 5, ¶ 35. However, the Consumer Federation of America estimates that, far from requiring support from long distance subsidies, local service actually produces net income for the LECs. Id.

81. See Kennedy, supra note 14, at 27.

82. Id.

83. Some scholars argue that predatory pricing is rarely rational. See, e.g., ROBERT H. BORK, THE ANTITRUST PARADOX: A POLICY AT WAR WITH ITSELF, 148-56 (1978) ("[t]he theoretical argument presented here suggests that predatory price cutting is most unlikely to exist and that attempts to outlaw it are likely to harm consumers more than would abandoning the effort"). The most serious flaw with predatory pricing activity in unregulated markets is that the predator must somehow recoup its losses from below-cost pricing tactics by charging monopoly prices after the victim has been forced out of business. This requires that predators maintain "supracompetitive prices for an extended time," which is virtually impossible absent strong barriers to entry. Matsushita Elec. Indus. Co. v. Zenith Radio Corp., 475 U.S. 574, 591-92 n.15 (1986) (hereinafter "Matsushita"). Others note that if legal or economic barriers to entry exist, or if the victim faces much higher capital costs than the predator, predatory pricing may be rational. See, e.g., RICHARD POSNER, ANTITRUST LAW: AN ECONOMIC PERSPECTIVE 184-96 (1976).

84. Matsushita, supra note 83, 475 U.S. at 589.


86. Kennedy, supra note 14, at 27.

87. Both the FCC and the California Public Utilities Commission have instituted expense reporting requirements which subject cost accounting figures submitted by the LECs to close scrutiny, in an effort to detect such practices. See, e.g., Federal Communications Commission, Separation of Costs of Regulated Telephone Service from Costs of Nonregulated Activities, 2 F.C.C.R. 1298, 1312 (Report and Order 1987); California Public Utilities Commission, Re Alternative Regulatory Frameworks for Local Exchange Carriers, D.89-10-031, 33 C.P.U.C.2d 43 (Oct. 12, 1989).

Another controversial question is what constitutes below-cost pricing. A complete discussion of this issue is beyond the scope of this article. The Seventh Circuit has held that so long as the price of a service covers its long-run incremental costs, that price is not predatory. MCI v. AT&T, supra note 88, 708 F.2d at 1120. The Ninth Circuit has expressed a broader standard. William Inglis & Sons Baking Co. v. ITT Continental Baking Co., 668 F.2d 1014 (9th Cir. 1981).


89. Id. at 31-32.

90. See, e.g., Otter Tail Power Co. v. U.S., 410 U.S. 366 (1973). Courts have held that the local exchange network to be an essential facility. MCI v. AT&T, supra note 85, 708 F.2d at 1133 ("[i]t would not be economically feasible for MCI to duplicate Bell's local distribution facilities (involving millions of miles of cable and line to individual homes and businesses), and regulatory authorization could not be obtained for such an uneconomical duplication"). Whether this holds true in a future market where LECs and cable television franchisors compete for customers remains to be seen.

91. Notice of Inquiry, supra note 5, ¶ 20.


93. Dordick, supra note 22, at 119.

94. Notice of Inquiry, supra note 5, at ¶ 20. Approximately one-third of all African-American and Latino households with annual incomes of less than $5,000 lack telephone service, and 53% of Native American households on reservations do not have phones. Nearly 15% of all households headed by a person under 25 years of age are without phones. Id.

95. Id. at 119.

96. Notice of Inquiry, supra note 5, at ¶ 21.

97. Id.

98. Id., citing testimony of Bong Hwan Kim, Executive Director, Korean Youth and Community Center, Los Angeles, California (Feb. 16, 1994).

99. Dordick, supra note 22, at 121.

100. Dordick notes that competitors have entered some of these unserved markets, using low-cost wireless technology (known as BETRS) to reach these communities. However, such efforts have often been delayed or prevented by challenges from the franchised carriers, even though the carriers do not currently serve the customers. Id.

information technology which arrives on the scene will tend to widen the gap even further. Id., citing Natan Katzman, The Impact of Communications Technology: Some Theoretical Premises and Their Implications, 223 EXISTICS 125, 125-30 (1974).

102. NII Agenda for Action, supra note 1, at 8.

103. Milton Mueller & Jorge Sche- 
ment, Universal Service from the Bottom Up: A Profile of Telecommunications Access in Camden, New Jersey, Rutgers University Project on Information Policy (Feb. 23, 1995) (summary on file with author).

104. Id.

105. Id. The study found that these households preferred cable to telephone service because telephones expose them to uncontrollable charges, whereas cable is a flat monthly fee; and telephones are often an undesirable channel for making drug transactions and receiving calls from government agencies and bill collectors. Cable television provides inexpensive enter-

tainment, helps keep children off crime-ridden streets, and "offers a visible sign of well-being in households with few mater-

ial comforts." Id.

106. Importantly, the findings suggest that public education concerning the value and proper use of various commu-

nications and information services may be at least as important as access to the services.

107. See supra text accompanying notes 81-87.

108. This problem has been identified by public interest organizations such as To-
ward Utility Rate Normalization (TURN). Much of the foregoing discussion has been derived from TURN’s testimony at the National Telecommunications and Information Administration’s Hearing on Universal Service and the National In-

formation Infrastructure (Los Angeles, California, Feb. 16, 1994).

109. Id.


111. Unfortunately, the Commission only required Telesis to return $41.3 mil-

lion, a drop in the bucket compared to the actual return on investment that this profitable division was worth. Id. The PUC’s ultimate decision concerning how to distribute this refund was recently an-

112. See, e.g., Browning, supra note 7, at 102 ("While the spirit of universal service—the idea that everybody should be able to speak as freely in the ether as they do in the air—is noble, its substance is woefully dated").

113. “Basic service” has been defined by the PUC to include most of the ele-
ments of today’s standard telephone service: access to single-party local exchange and interchange carriers, abil-
ity to place and receive calls, touch-tone dialing, free access to emergency (e.g., 911) services, access to directory assistance, Lifeline rates and TTD relay serv-
ices for eligible customers, access to in-
formation (e.g., 800 and 900 services), one-time free blocking for information services, access to customer service, and operator services. PUC Proposed Uni-

versal Service Rules, supra note 7, Ap-

pendix A.

114. Pressler & Schieffer, supra note 7, at 370.

115. Dordick, supra note 22, at 125-

28.

116. “Advanced services” are all tele-

communications service not included in the current definition of “basic service.” Examples of advanced services include Caller ID, Call Forwarding and related services, voice mail, paging services, cel-

lular and wireless telephone services, In-

tegrated Services Digital Network (ISDN) access, and fax services. Additionally, advanced services may embrace com-

puter-based communication services such as E-Mail, file transfers, real-time elec-

tronic conferencing, Wide World Web ser-

vices and video conferencing, as well as “video dialtone” services such as cable television, video-on-demand, and inter-

active multimedia services.

117. The scope of universal service has changed over the years to include ad-

vancements such as direct dialing, sin-
goel party lines, and even touch-tone ca-

lling; free access to emergency (e.g., 911) services, access to directory assistance, Lifeline rates and TTD relay ser-

vices for eligible customers, access to in-
formation (e.g., 800 and 900 services), one-time free blocking for information services, access to customer service, and operator services. PUC Proposed Uni-

versal Service Rules, supra note 7, Ap-

pendix A. In addition to requiring an exces-

sively high penetration rate, this method of identifying subsidized services will force the PUC to make difficult judg-
ments as to the necessity and quality of individual services, which may well cause the Commission to attempt to avoid mak-

ing such decisions at all.

126. “Common carriage” is the pro-

vision of services to the public in a non-
discriminatory basis.


128. The PUC’s proposed universal service rules fail to provide for public education or training, and only require minimal disclosure of pricing informa-
tion to customers. PUC Proposed Uni-

versal Service Rules, supra note 7, Ap-

pendix A.
129. "The Alliance for Public Technology is a nonprofit coalition of public interest groups and individuals whose goal is to foster universal access to affordable, useable information and communications services and technology." Hadden, supra note 7, at 17 n.2.

130. Connecting Each to All, supra note 123.

131. Hadden, supra note 7, at 18–20.

132. Notice of Inquiry, supra note 5, ¶ 57; Hadden, supra note 7, at 18.

133. See supra text accompanying notes 40–42.

134. For example, development of computer bulletin board services (BBS) in rural areas has demonstrated that advanced services can be provided to such users. These services provide a local number which rural residents may dial to access the Internet, thus avoiding the long distance charges that would accrue if such calls were made to Internet access providers in more urban areas. Also, many commercial online services provide toll-free numbers which allow distant users to access the service without being charged long distance rates.

135. See supra text accompanying notes 43–44.

136. NIL: Agenda for Action, supra note 1, at 9; Notice of Inquiry, supra note 5, ¶ 62.

137. Hadden, supra note 7, at 19.

138. Id. at 18. For example, today’s telephone system is "open" with respect to voice transmissions. A caller may send or receive any voice message at any time. By contrast, a cable television system is a closed system, offering only a limited option of viewing choices and no capability for users to interact.

The FCC has coined the term "video dialtone" to describe a more open system in which users may both send and receive video programming. Kennedy, supra note 14, at 76. A more appropriate term might be "information dialtone."

139. The FCC has also recognized the importance of openness in developing its Open Network Architecture (ONA) rules, aimed at allowing the RBOCs to compete with other service providers in delivering advanced information services. The ONA rules allowed competing providers to access RBOC infrastructure and required the RBOCs to buy access to their own services under the same tariffs as their competition, thereby preventing unfair disadvantage to the competitors. See id. at 65–66.

140. The need for privacy and security safeguards is also discussed in the Clinton administration’s National Information Infrastructure plans. NIL: Agenda for Action, supra note 1, at 9–10.

141. Although these standards should be implemented uniformly at the federal level, their enforcement may be left to state public utilities commissions.

142. Hadden, supra note 7, at 20.

143. Id.

144. Note that various consumer groups, including the Utility Consumers’ Action Network and the Universal Service Alliance, have proposed that carriers be assessed a “universal applications incentive fee.” This fee would be distributed in the form of grants to state/local/business partnerships, which would in turn develop applications designed to meet the needs of a broad range of customers. These applications would be made available to diverse segments of the population, thus reducing the amount of the subsidies required to maintain universal service. PUC Proposed Universal Service Rules, supra note 7, at 23. Unfortunately, the Commission refused to adopt such incentives in its proposed rules. Id. at 25–26.

145. Hadden, supra note 7, at 20.

146. In this regard, see Chesapeake & Potomac Tel. Co. v. United States, et al., 42 F.3d 181 (4th Cir. 1994), and US West, Inc. v. United States, 48 F.3d 1092, 1106 (9th Cir. 1995), both holding that a 1984 Cable Act provision prohibiting telephone common carrier delivery of video programming fails the narrow tailoring requirement of the intermediate scrutiny test, and therefore is invalid under the first amendment.


148. See supra text accompanying notes 81–90.

149. For instance, if the provider of the telecommunications service also provides a popular online information service, the provider might attempt to tie the two services by requiring purchase of the telephone service in order to obtain the information service. Or, the provider might cross-subsidize the information service with excess profits from the telecommunications service and price the information service below its costs, thus driving competing information service providers out of business.