

DISCONNECTED

WHAT THE PHONE SYSTEM'S DIGITAL TRANSITION WILL MEAN FOR CONSUMERS

Paul Goodman • Legal Counsel Carmelita Miller • Telecommunications Legal Fellow

Brian Kim • Summer Associate

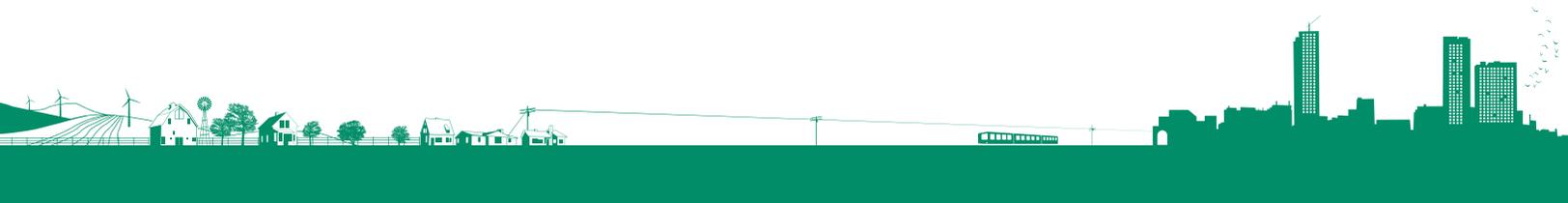


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ACKNOWLEDGEMENTS

About The Greenlining Institute

Founded in 1993, The Greenlining Institute is a policy, research, organizing, and leadership institute working for racial and economic justice. We work to bring the American Dream within reach of all, regardless of race or income. In a nation where people of color will make up the majority of our population by 2040, we believe that America will prosper only if communities of color prosper.

Telecommunications & Technology Program

Nothing is more essential than communications in today's technological age. Information and communications technology has become vital to nearly everything we do, from applying for a job to staying in touch with loved ones or accessing healthcare. Greenlining works to ensure that these technologies are high quality, available to all, and affordable regardless of income. In addition, we work to make sure the telecommunications industry is responsive to the nation's growing communities of color.

About the Authors

Paul Goodman, Legal Counsel

Paul's work is grounded in the belief that all telecommunications policy has racial equity impacts. He serves as Greenlining's legal counsel at the California Public Utilities Commission and the Federal Communications Commission, advocating for underserved communities' access to affordable and reliable telephone, video, and Internet services. While at Greenlining, Paul has successfully opposed the highly anti-consumer proposed merger between AT&T and T-Mobile, fought to preserve critical consumer protections for telephone service, and helped shape the evolution of state and federal Universal Service Programs. He is a regular contributor to Greenlining's blog, where he writes about telecommunications and competition policy.

Carmelita Miller, Telecommunications Legal Fellow

Carmelita is from South San Francisco, California and received a B.A. in History from Sacramento State University. She recently graduated from UC Hastings College of the Law. While at UC Hastings, she served as the President of the Pilipino American Law Society and Co-Editor-in-Chief of the Hastings Race and Poverty Law Journal. Inspired by her personal experiences living in low-income, immigrant, and working-class communities, she dedicated her free time in law school to providing legal assistance to the low-income population by interning and volunteering at various community organizations that provide pro bono work.

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EXECUTIVE SUMMARY

- Today's regulated telephone system includes strong protections for consumers, protections that may be endangered by the analog-to-digital telephone transition.
- Major telephone providers plan to upgrade the technology they use in their telephone networks, and an overwhelming majority of carriers seem to agree that the transition to an all-digital network is a good idea.¹
- Those carriers also argue that the government should have no, or extremely limited, oversight of digital communications networks² and are advocating for the elimination of Federal Communications Commission (FCC) and state oversight of all-digital networks.³
- If the carriers are successful, the transition could harm all consumers, with disproportionate harm to communities of color.

Implemented properly, the analog-to-digital telephone transition can ensure that everyone in the U.S. continues to have access to one of the most reliable telephone networks in the world.

- The analog-to-digital transition could potentially reduce the availability of telephone service, leaving some communities without any service whatsoever:
 - Carriers could no longer have the obligation to offer service to every home in their service territory, leaving some consumers unable to obtain phone service.
 - Carriers could no longer have the obligation to accept and route calls from other carriers, allowing larger carriers to drive smaller ones out of business and destroy competition.
 - The transition could disrupt Federal and state oversight of subsidy programs meant to ensure service to high-cost areas and low-income consumers.
- The analog-to-digital telephone transition could result in substandard service, reduced public safety, and consumer harms:
 - Carriers could no longer be subject to service quality and call completion requirements.
 - Carriers could have no obligation to provide access to 9-1-1, reverse 9-1-1, and free crisis counseling numbers.
 - Federal and state agencies could lose their ability to protect consumers with limited English proficiency, disabled consumers, seniors, and consumers who need privacy protections.

Recommendations

While the analog-to-digital telephone transition could cause these serious harms, the transition also has the potential to benefit everyone. A well-implemented transition could improve our national telephone network, enhance public safety, and benefit all users. To ensure these benefits, policymakers should take the following steps:

- Policymakers should continue to protect those customers who use analog services during the transition, which will occur over several years.
- Policymakers should acknowledge that analog phone calls and digital phone calls are both phone calls, regardless of the technology used. The Federal Communications Commission or Congress should clarify that digital phone services are telecommunications services subject to the jurisdiction of the FCC.
- Policymakers must stop viewing telecommunications issues in isolation, and should take a more holistic approach that considers the impact of policy changes on the greater telecommunications landscape.
- Policymakers must acknowledge that changes in telecommunications policy have different impacts on differently situated groups. They should consider demographic disparities and issues of equity when considering policy changes.

A Tale of Two Telephone Customers

Joe and Josephina are neighbors, and both have two children. Joe and Josephina work at ACME Widgets, their town's major employer.

Joe and Josephina's parents live across the country. Every Sunday, Josephina's parents call to talk to their grandchildren. Joe's parents also call to talk to their grandchildren, but the calls often drop, or there is so much static on the line that conversation is impossible. Joe called customer service about the problem, and was placed on hold for almost two hours before he could get help.

The summer in Joe and Josephina's town was exceptionally dry, and a fire broke out on the outskirts of town. The fire interrupted school bus service, and buses were unavailable to take Joe and Josephina's children home. Josephina received a call from the town's reverse 9-1-1 system, and was able to make arrangements to pick up her children. Joe's phone service did not include the reverse 9-1-1 service. No one could reach Joe, and Joe's children were stuck at school.

The fire damaged some of the town's phone lines, cutting off Joe and Josephina's phone service. Josephina's phone company sent out repair crews, restoring her service within hours. Joe's phone company had understaffed repair crews, and his service was not restored for two weeks. When the phone company restored the service, they replaced Joe's wired connection with a wireless service whose quality was markedly inferior to Joe's old service and, unlike the old service, did not function during power outages.

As the result of an economic downturn, ACME closed the factory, and Joe and Josephina lost their jobs. Josephina could no longer afford her phone service, but was able to sign up for Lifeline, a program offered by her phone company that provides affordable phone service for low-income consumers. Because Josephina had phone service, potential employers were able to contact her, and she soon found a job. Joe could no longer afford to pay for his telephone service and did not have access to Lifeline. Joe applied for a number of jobs, but because he had no phone service, potential employers couldn't contact him, and he is still unemployed.

You might assume that Josephina and Joe had different telephone providers. But what if Josephina and Joe get the same telephone service from the same company? How could customers with the same provider have such different stories? Simple. Josephina lives in a world where phone companies are required to participate in low-cost programs, and provide a minimum level of service quality as well as access to emergency numbers. Joe, on the other hand, does not.

**We all want to live in a world
where everyone is able to obtain
and afford reliable phone service.**

It's safe to say that everyone wants to live in a world like Josephina's—one where everyone who wants it can obtain and afford reliable phone service. Fortunately, *if you live in the United States, you live in Josephina's world*. Since 1887, the government has advanced telecommunications policies that promote competition, expand availability, keep service up and running, and protect consumers.⁴ As a result, our telephone network reaches virtually every corner of the United States, and almost everyone has access to quality, affordable service. Unfortunately, there's a very real risk that this robust national network could go away.

In the past few decades, carriers have been introducing digital technology to their phone networks. The major carriers are seeking to convert their entire networks to digital technology, while arguing that the government should not impose quality standards or consumer protection rules on carriers using digital technology — and that in some cases it is prohibited from doing so. If carriers have no incentive to comply with service quality standards or respect consumer rights, we risk transitioning from a reliable network with robust consumer protections to a network where providers don't have to offer service, or provide decent service when they do. Such changes could potentially harm everyone who uses a telephone, but would disproportionately affect communities of color.

THE ANALOG-TO-DIGITAL TELEPHONE TRANSITION: WHAT IS IT?

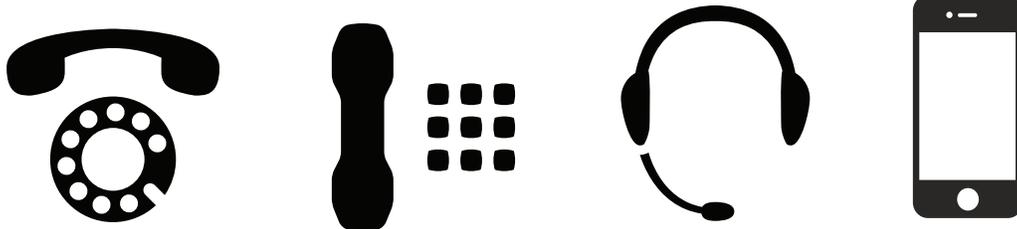
The analog-to-digital telephone transition (called the “TDM to IP transition” by telecommunications policymakers and advocates) refers to a transition from old to new telephone technologies. However, the transition involves much more than a technological upgrade. It also involves serious debate over whether long-standing consumer protections for telephone service apply to new technologies.

While analog calls and digital calls use different *technologies*, they serve the same *function*.

Until recently, phone networks exclusively used analog technology, which transmits a caller’s voice down the phone line as a sound wave. However, as technology advanced, companies introduced digital technology into their networks. This digital technology converts a caller’s voice into computer code, and then back to a sound wave at the other end of the call. While some networks use 100 percent digital technology, and a few use 100 percent analog technology, most networks use a hybrid of both technologies.

While analog calls and digital calls use different *technologies*, they serve the same *function*: You pick up the telephone and dial a number. The person you called answers the phone, you have a conversation, and then you hang up, ending the call.

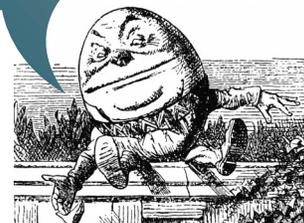
This is a telephone. You use it for either technology.



Telecommunications Services vs. Information Services

When it comes to law, definitions are everything. For example, the argument about whether a tomato is legally a fruit or a vegetable eventually had to be resolved by the Supreme Court.⁵ Telecommunications law is no different — different communication services have different classifications, and those classifications determine which rules and standards a carrier must follow. The 1996 Telecommunications Act divides all communications services into one of two categories: telecommunications or information.

“When I use a word,”
Humpty Dumpty said...
“it means just what I
choose it to mean —
neither more nor less.”⁶



Analog and Digital Phone Technologies

The “analog” technology is called Time Division Multiplexing, or TDM. TDM allows multiple phone calls to travel down the same wire. The phone calls travel as sound waves along one path to their destination.

TDM calls are like a train that travels a fixed route — the cars travel together down one track to their destination. If there is a problem with the tracks, the train cannot switch to another track, and can’t reach its destination.

TDM calls have some disadvantages — if the call is interrupted, the network has no way to recover, and drops the call. However, TDM networks also have some advantages — for example, they continue to operate during a power outage.

The “digital” technology uses Internet Protocol, or IP. IP technology takes a phone call and breaks it into packets. The phone network sends those packets across the network to the call’s recipient, at which point the network puts all the packets back together in the proper order.

During IP calls, the cars in the train can split up and take different routes to the destination, depending on which track is fastest at the time the car leaves the station. When the cars arrive at the destination station, the station master reassembles the cars in their original order.

The individual packets in an IP call don’t have to travel down the same route, so if there’s a problem with a call, the network can reroute it, and won’t drop the call. However, in the event of a power outage, IP networks won’t operate unless the customer has a battery backup for their equipment.

Pros and Cons

ANALOG TECHNOLOGY		DIGITAL TECHNOLOGY
Pros:	Can continue to operate during a power outage	If there’s a problem with a call, the network can reroute it, and won’t drop the call.
Cons:	If a call is interrupted, the network has no way to recover, and drops the call.	In the event of a power outage, IP networks won’t operate unless a customer has a battery backup for their equipment.

Telecommunications Services

The term “telecommunications” means the transmission, between or among points specified by the user, of information of the user’s choosing, without change in the form or content of the information as sent and received.⁷ Phone calls are telecommunications — the caller (the “user”) chooses whom to call (the “points specified by the user”), and the network transmits the speakers’ voices back and forth without changing them (“without change in the form or content of the information as sent and received”). Under Title II of the Telecommunications Act, the FCC has broad authority to regulate telecommunications services. That authority applies to analog phone service, because analog phone service is classified as a telecommunications service. Providers that offer analog service must follow FCC rules designed to promote competition, ensure a national telephone network, and protect consumers.

Information Services

The term “information service” means the offering of a capability for generating, acquiring, storing, transforming, processing, retrieving, utilizing, or making available information via telecommunications. It includes electronic publishing, but does not include any use of any such capability for the management, control, or operation of a telecommunications system or the management of a telecommunications service.¹⁰ YouTube is an example of an information service. YouTube allows you to upload videos (“making available information”) and store them on an online server (“storing”). Other individuals can then access and watch that video (“retrieving”). The FCC has a more limited authority over information services than it has over telecommunications services.¹¹ In fact, some carriers argue that the FCC has no authority to create and enforce rules about information services at all.¹²

Hybrid Networks

Modern communications technologies are composed of telecommunications services and information services. For example, when you subscribe to broadband Internet service from a cable company, your broadband service has both a telecommunications component and an information component.¹³ The information you access on the Internet — a web page, a funny cat video, or streaming music — is considered an information service.¹⁴ The technology used to deliver that information, however, is a telecommunications service. For example, when uploading a video to YouTube, you select the information (the video), and the destination (the YouTube servers).¹⁵ The “transmission, between or among points specified by the user, of information of the user’s choosing” is telecommunication.

What about Digital Telephone Service?

A few years back, carriers stopped referring to digital telephone services as “digital phone services” and began referring to them as “digital voice services.” They made this change for a reason: The carriers argue that if you pick up a phone, call someone, and have a conversation, but the phone company uses digital rather than analog technology, you’re not making a phone

A letter can be delivered across the country using a plane or a truck, but it’s still a letter. By the same logic, a phone call is a phone call, regardless of the technology used to transmit that call.

call. Rather, you’re just using the Internet, like you would when checking your email or watching a video. Carriers argue that digital phone calls are information services, and therefore the FCC has limited (or no) authority to impose rules and standards regarding those services.

During a digital phone call, the network converts your voice into packets, which are transmitted across the network. The packets are reassembled into a voice signal before the listener hears it. Carriers argue that this conversion into packets means that the signal constitutes a “change in form or content” of the call, and therefore, digital phone calls cannot be telecommunications under the Communications Act. However, this argument oversimplifies the nature of digital phone calls. The conversation is a telecommunication component of the service, and the “packetization” process is an information component of the service. Accordingly, digital phone

calls use an information service to transmit telecommunications. To clarify, a digital phone call uses a digital network — an information service — to deliver a phone call — a telecommunications service.

So who’s right? Unfortunately, the current answer is “we don’t know.” The FCC has expressly refused to answer this question, numerous times.¹⁶ The FCC’s reluctance has actually been somewhat reasonable — by refusing to classify, the FCC avoids having to impose potentially unnecessary or obstructive rules on an emerging technology, but retains the ability to do so, thereby using the possibility of rulemaking to influence carriers’ behavior. However, the fact of the matter is that digital phone service is no longer an emerging technology — it’s widely available and offered by every major phone provider. It is so widely available, in fact, that many carriers are looking to convert their entire networks to digital networks.

Why Do We Need Basic Standards?

Even in today's highly digital world, individuals and communities cannot thrive without access to affordable, reliable telephone service. However, telephone companies have historically lacked the financial incentive to provide affordable, reliable service to everyone who wants it. When market forces are insufficient to ensure universal service, protect consumers, ensure basic call quality, and promote innovation, the government can enforce basic standards to promote those goals.



As telephone service became an increasingly vital element of American life, the government found it necessary to create policies affording every American the right to reliable, affordable, and accessible telephone service. Accordingly, Congress created the Federal Communications Commission (FCC), and gave the FCC the authority to enact rules and standards for telephone service and implement the country's communications policies.

It's important to recognize that the FCC isn't just an agency that "regulates interstate and international communications by radio, television, wire, satellite, and cable"⁸ — at heart, it's a consumer protection agency. The FCC maintains oversight of telecommunications to fulfill its statutory mandate to "make available, so far as possible, to all the people of the United States, without discrimination on the basis of race, color, religion, national origin, or sex, a rapid, efficient, Nation-wide, and world-wide wire and radio communication service with adequate facilities at reasonable charges."⁹

The FCC encouraged a competitive environment — one where consumers could obtain phone service from a number of different carriers in their area. This environment encouraged telephone companies to lower their prices and improve the quality of their service in order to attract as many customers as possible. This increased competition incentivized expansion into untapped markets: entrepreneurs rushed to build outside of major cities and expanded coverage to include all possible avenues of profit, producing a robust national telecommunications infrastructure. The FCC's policies successfully created huge commercial opportunities and quickened the pace of technological innovation.

Where competition was insufficient to achieve our national telecommunications goals, the FCC used its rule-making power. FCC rules ensured that everyone had access to telephone services by requiring providers to offer service to every customer in their service territory and by subsidizing build-out of the network. The FCC also ensured that telephone service was affordable, by preventing companies from charging unreasonable rates and by subsidizing service for low-income consumers. As a result of government oversight, telephone service was made available to all Americans, and consumers and corporations alike benefited from institutionalized protections. The FCC's policy of encouraging competition, supplemented with reasonable regulation of telecommunications services, was largely responsible for creating the widely available, reliable, and affordable phone service we have in the United States today.

The Analog-to-Digital Telephone Transition

The major carriers have all expressed their desire to convert their networks to all-digital technology.¹⁷ From a carrier perspective, transitioning a network to all-digital makes sense. Digital networks can handle more calls than analog networks,¹⁸ and it's cheaper to maintain and repair those networks.¹⁹

So, why don't the carriers go ahead and switch to digital technology and get rid of the analog network? Well, it's all down to those pesky basic standards we've all come to expect. Carriers can't discontinue analog telephone service without the FCC's permission. The carriers are already seeking this permission: AT&T recently filed a petition asking the FCC for permission to get rid of its analog networks and replace them with digital technology.²⁰ AT&T and a number of other providers argue that digital networks are superior, that the analog-to-digital transition is inevitable, and that companies can't operate both analog and digital networks and still remain profitable.²¹

However, providers are motivated by more than upgrading the technology on their network. They're also pushing very hard, both at the FCC and in the courts, for a ruling that digital phone service is an information service and thus largely outside the FCC's jurisdiction.

Basic consumer protections

ensure that everyone has

access to affordable, reliable

telephone service.

Transitioning to an all-digital network without accompanying consumer protections could potentially harm consumers. For example, unlike analog telephone services, digital telephone services do not work during a power outage.²² Similarly, a ruling that digital phone service is an information service could harm consumers, because the FCC's ability to enforce consumer protections from information services is unclear. However, these harms would pale in comparison to the harms that could occur if the carriers

got permission to transition to an all-digital network and digital phone services were classified as information services. The result would be a national phone network that the FCC had limited or no ability to protect. The consequences of that environment could be dire.

THE ANALOG-TO-DIGITAL TELEPHONE TRANSITION AND COMMUNITIES OF COLOR

If the analog-to-digital transition happens while regulations fall behind, carriers might no longer be required to serve every customer in their service area and transfer calls to other carriers. Additionally, the FCC and many states could lose the ability to oversee telecommunications subsidy programs like Lifeline. In a worst-case scenario, the national network could break up into several separate networks, and large portions of the country in between those networks could go unserved.

While that scenario could happen, it probably won't. What's more likely is that small areas of the country could lose service, and those areas would probably be home to low-income communities and communities of color. In those areas where there is still telephone service, service quality could be substandard and more expensive. Additionally, telephone service might not include some of the fundamentally important features we all take for granted.

Communities of Color Rely on Telephone Service

Communities of color are more dependent on telephone service, so any harms caused by a transition to a telephone system without service standards or consumer protections would disproportionately impact those communities. Consumers of color are less likely than whites to have access to home Internet service.²³ For those individuals, access to reliable phone service is critical. For example, 21 percent of uninsured individuals in the United States (many of whom are Latino) do not have access to the Internet, and their phone may be their only access to a health benefit exchange.²⁴ For many consumers of color, the telephone is a critical means of access to health advice, social services, civic participation, employment opportunities, information, or contact with family and friends.²⁵

Communities of color are more likely to be low-income,²⁶ and low-income consumers are more likely to have only one form of telephone service.²⁷ As a result, low-income consumers are particularly dependent on reliable phone service.

Communities of color are also less likely to have access to personal transportation.²⁸ In 2006, while 4.6 percent of white non-Hispanic U.S. residents lived in households without access to automobiles, 13.7 percent of Hispanic and 19 percent of black U.S. residents lived in households without a car.²⁹ Without access to an automobile, a consumer is far more reliant on their telephone to arrange alternate transportation, obtain prescriptions through mail-order pharmacies, contact government services, and talk to their doctor.

For many consumers of color, the telephone is a critical means of access to health advice, social services, civic participation, employment opportunities, information, or contact with family and friends.

Maintaining a Unified National Network

The transition to all-digital phone networks coupled with a lack of policymaker oversight could result in the elimination of our national telephone network, which provides service to virtually everyone in the United States. The “duty to serve” — the requirement that carriers make service available to everyone in that carrier’s service territory — has been part of telecommunications law since at least 1934. If we transitioned to an all-digital network and carriers of all-digital service had no such duty, those carriers would no longer be required to offer service to everyone in their service territory. They could “cherry-pick” those customers who are willing to pay high prices, who are easiest to build out to, or are willing to agree to unfavorable terms and conditions in their contract. Carriers also might not be required to send calls to and receive calls from other carriers. This is called interconnection, and it ensures that one person can call another person even if that person uses another phone provider.

Finally, the transition could seriously disrupt federal and state oversight of programs designed to provide telephone service to low-income and other hard-to-serve consumers. These programs, known as “Universal Service” programs, provide subsidies that encourage carriers to provide service in expensive or hard-to-reach areas, as well as subsidies that reduce the price low-income consumers pay for phone service.

The Duty to Serve

If you move, whether it's across town or across the country, you'll be able to get phone service at your new home. This is a result of our long-standing public policy that telephone service is a vital element of everyday life, and as such should be available to everyone. Following Congress' directive, the FCC requires phone carriers to provide access to phone service to everyone within that carrier's service territory. This "duty to serve" helped create a telephone network that reaches almost every home in America: By 2011, 95.6 percent of all U.S. households had telephone service.³⁰

The concept of "duty to serve" existed long before the advent of telephone service, and has its roots in the legal concept of "common carriers" — companies that sold transportation to the general public, including stagecoaches,³¹ trains, and even stores with elevators and escalators.³² Common carriers have the legal duty to serve every customer who can afford to pay for their services. Under U.S. law, telecommunication providers are common carriers of messages, and have this same duty.³³ In fact, Title II of the 1996 Communications Act is explicitly titled "Common Carrier Regulation."³⁴

If the analog-to-digital transition results in the elimination of carriers' duty to serve, carriers could no longer be required to provide phone service to everyone.³⁵ As a result, carriers might

"If I explained universal phone service to my grandparents, I would tell them that just as they can't be denied a seat on a train or a bus, the telephone companies can't deny quality affordable service."

—Carmelita Miller

Greenlining Legal Fellow

stop serving customers in less profitable areas. For example, if a natural disaster destroyed part of a carrier's network,³⁶ carriers might not have a sufficient financial incentive to repair the network quickly, or, for that matter, at all. Additionally, if the FCC can no longer require carriers to serve every customer in their service area, the carrier might make the business decision to decommission the network in areas that are degrading or that need repair.

otherwise, they would lose business from customers who could not call them.³⁷ Under interconnection requirements — informally known as "must-carry" rules — telephone companies must carry other companies' calls. For example, if a Sprint customer calls an AT&T customer, Sprint routes the call to AT&T, and once AT&T receives that call, AT&T must handle that call the same way it handles its own calls. The carriers aren't required to do this for free — they negotiate prices and charge each other for interconnection. Interconnection rules ensure that every carrier's network is connected to every other carrier's network.

"Must-Carry" Rules

While the carriers state that they intend to upgrade all of their networks to digital technology, in a world with an all-digital network, the carriers wouldn't necessarily be required to upgrade their networks everywhere. Rather, carriers could pick and choose which areas they'd like to upgrade and abandon the rest. Small carriers could step in to fill the hole, either by building their own digital networks or buying the analog networks. However, those smaller carriers could find themselves unable to connect to the rest of the telephone network.

Interconnection requirements are a variation on "duty to serve" requirements. Under duty to serve rules, a carrier must allow any customer to connect to the carrier's network. Under interconnection rules, a carrier must allow any carrier to connect to the carrier's network.³⁸

Post-transition, carriers would arguably not be subject to an interconnection requirement if the FCC or the courts classify digital phone service as an information service.³⁹ Such requirements do not exist for information services — only for communications services.⁴⁰ Digital phone carriers would no longer have to accept calls from other carriers, and carriers might not accept those calls if interconnection wasn't sufficiently profitable or there were competitive reasons for denying another carrier interconnection. Alternatively, carriers could discriminate against those calls — for example, if a carrier's network got overloaded, the carrier could give priority to its own customers' calls and drop calls from other carriers.

Without an interconnected telephone network, we'd all have to order telephone service from multiple companies.

If we transition to a telephone network without interconnection obligations, large carriers would probably continue to interconnect with each other, because there's a financial incentive to do so. However, large carriers could refuse to interconnect with, or charge especially high interconnection fees to, small regional carriers, drive those carriers out of business, and then pick up the remains for pennies on the dollar. As a result, telephone service would be provided by only a handful (and in many areas, just one) carrier, who could set high prices without the pressure of competition.

Universal Service Programs

Congress has created a number of programs designed to ensure that everyone in the country has access to affordable phone service. These programs, known collectively as "Universal Service" programs, promote the availability of quality telephone service at affordable rates, encourage build-out of services to low-income, rural, or remote area consumers, and increase access to telecommunications and other advanced services in schools and public libraries.

Having access to telephone service doesn't help if you can't afford that service. The U.S. has a long-standing policy goal that everyone in the country should have access to affordable phone service. The most well-known Universal Service program is Lifeline, which subsidizes the price of phone service for low-income consumers. Lifeline-eligible consumers pay a discounted rate for telephone service, and carriers receive subsidies that make up the difference between the Lifeline rate and the standard rate. The Lifeline program ensures that low-income consumers — students, seniors, and the unemployed and underemployed — are able to call 9-1-1 during an emergency, be reached by a prospective employer while on a job search, or simply talk to their friends and loved ones.

The Lifeline program has a companion program, Linkup, which subsidizes the cost of initial connection fees for telephone service.

The FCC also provides subsidies for carriers that build and maintain networks in "high cost" areas — areas where it is very expensive for carriers to provide service. Without subsidies, carriers serving high-cost areas would have to charge customers two or three times the standard rate to recover their costs of providing service to remote rural areas, mountainous areas, islands, and other hard-to-reach areas. High-cost subsidies allow carriers to offer service at affordable prices. Without high-cost subsidies, service prices would be unaffordable to customers in that area, and without customers who could pay, carriers would be unwilling to provide service.

The existence of these subsidy programs is critical, particularly for communities of color. A 2013 study examined the impact of eliminating Lifeline and Linkup on telephone penetration rates — the percentage of the population that has access to phone service.⁴¹ The study concluded that eliminating those programs would reduce the population with access to phone service by approximately 6 percent.⁴² Eliminating Lifeline and Linkup would disproportionately harm communities of color — while penetration rates among whites would be reduced by approximately 5.5 percent, penetration rates among blacks would be reduced by approximately 6.7 percent, penetration rates among Asians would be reduced by approximately 7.3 percent, and penetration rates among Native populations would be reduced by approximately 6.6 percent.⁴³

Having access to telephone service doesn't help if you can't afford that service.

Even if we lose our ability to create minimum standards for subsidized phone service, phone subsidies probably won't go away entirely — Universal Service is too important a goal to abandon. However, we could end up in an environment where we're handing over ratepayer dollars with no guarantee of what we're getting. For

example, in California, the California Public Utilities Commission has very limited authority to make rules about Voice over Internet Protocol (VoIP) services.⁴⁴ Additionally, the California Legislature is currently considering a bill that would authorize VoIP providers to receive Lifeline funds.⁴⁵ Under the terms of that bill, carriers only have to comply with consumer protections set by the FCC. However, if the FCC loses the ability to enforce those consumer protection rules, California ratepayers could end up paying for a subsidy for service that's not subject to any quality standards or consumer protections at either the state or federal level.

Carriers are under constant pressure to increase their company's value by increasing their profits. Accordingly, carriers might increase profit margins by reducing service quality or customer service standards. Similarly, carriers' drive to increase profits coupled with the lack of FCC or local authority could cause carriers to increase their prices to a level so high that low-income consumers could not afford Lifeline service even with the subsidy. This dilemma doesn't only apply to Lifeline — it would apply to any of the FCC's Universal Service programs.

Continuing to Offer Guaranteed Services and Protections

While the analog-to-digital transition could result in the replacement of our national telephone network with a set of fragmented individual networks, this outcome is unlikely. First, while telephone companies may not have a financial incentive to provide service to everyone, they do have a financial incentive to maintain a network that is national in scope, but does not reach everyone in their service territory.

The FCC is charged with making “available, so far as possible, to all the people of the United States, without discrimination on the basis of race, color, religion, national origin, or sex, a rapid, efficient, Nation-wide, and world-wide wire and radio communication service with adequate facilities at reasonable charges.”

Second, if the FCC permitted carriers to convert their networks to pure “communications service” networks, that FCC action would probably be a violation of the Commission's statutory duty. By law, the FCC was created for the purpose of making “available, so far as possible, to all the people of the United States, without discrimination on the basis of race, color, religion, national origin, or sex, a rapid, efficient, Nation-wide, and world-wide wire and radio communication service with adequate facilities at reasonable charges.”⁴⁶ To meet this statutory duty, the FCC must maintain some authority over the telephone network.

It is possible that consumers in some pockets of the country — areas telephone companies don't find it profitable enough to serve — could find themselves without service. Additionally, while most consumers in the U.S. would still be able to obtain telephone service, it's quite possible that the service they receive might be substandard — weaker signals, more dropped calls, and reduced access to services like 9-1-1 and 1-800 numbers. Without some form of oversight, carriers might see a short-term opportunity to maximize profits by eliminating services and reducing service quality. Ideally, however, carriers will take a longer-term view, and reap the financial benefits that result from a telephone network that reaches everyone.

Service Quality

Everyone has a right to access high-quality telephone service — to make and receive clear, reliable, and complete phone calls. A person living in a rural or remote area should receive the same level of service as a person living in a large city. The ability to make a phone call is useless if you can't hear the person on the other end of the line. If you're having trouble with persistent dropped calls, noise on your phone line, getting phone service installed in a timely manner, or something as simple as reaching customer service, you can complain to the FCC or your state's Public Utilities Commission. Those agencies can make the phone company fix the problem, and may impose fines. These commissions' service quality standards ensure that you don't only have access to telephone service — you also have access to telephone service that is *adequate* and *reliable*. In other words, you're getting some value for the money you pay.

Service quality standards ensure that we all have access to adequate, reliable telephone service.

If the transition results in carriers offering only phone services that are wholly classified as information services, carriers might not have to comply with the FCC's service quality rules. Carriers, faced with pressure from shareholders and investors, could determine that it would be more profitable not to comply with those rules. Additionally, in those states where PUCs do not have jurisdiction over VoIP services, carriers potentially would not have to comply with state service quality rules either. As a result, you could have no guarantee that when you make a call, there won't be any static on the line, or your call won't get dropped. If you did have a problem with your service, there could be no guarantee that you'll be able to reach customer service or that the telephone company would fix the problem in a reasonable amount of time, or, potentially, at all.

Public Safety



The analog-to-digital telephone transition could reduce or eliminate a number of public safety services that we take for granted. The role of telephones in improving public health and safety cannot be understated. Because of telephones, it is easy for a person to dial a three-digit number to call for help during an emergency. Additionally, local officials can use "reverse 9-1-1" to call residents in their homes to warn them about a disaster. Finally, dependable, reliable phone service gives consumers access to critical crisis counseling services like suicide and domestic violence hotlines.



Public Safety — 9-1-1

If there's one thing you never think about until you need it, it is access to emergency services. If you need the police, the fire department, or medical assistance in this country, all you have

Technological innovations like the development of digital telephone technology allow the creation of improved emergency services.

to do is pick up a phone and dial a single three-digit number. 9-1-1 was established in 1968 as the universal emergency phone number throughout the country as a response to the growing need for an easier way to report fires and other emergencies.⁴⁷ 9-1-1 dispatchers receive more than 237 million calls every year, using either analog phones or cell phones. The FCC requires that carriers provide access to the 9-1-1 system. Additionally, some carriers are required to provide enhanced 9-1-1 services, also known as "E9-1-1." E9-1-1 is an upgrade to the 9-1-1 emergency system, which automatically associates a physical address and phone number with the phone call. The FCC requires the analog telephone companies to provide their customers' address and phone number, to be collected into a database that the E9-1-1 system uses.

Unfortunately for digital customers, if the broadband network goes down, the power is out, if service is interrupted, or if the local 9-1-1 emergency office does not recognize digital calls,⁵⁰ it is likely that those customers will have no 9-1-1 or E9-1-1 access at all. These limitations make digital phone service less reliable than analog service during emergencies.



9-1-1 is so ubiquitous that even very young children know to dial it during an emergency. Two-year old Alana was home when her mom suddenly collapsed due to a severe migraine attack. Alana dialed 9-1-1 and told the dispatcher "mommy owie."⁴⁸ Within minutes, the paramedics reached Alana's home to provide her mom medical assistance.⁴⁹ Besides remembering the number and having access to dial 9-1-1, there is another reason why Alana was able to save her mom: Without needing to have an intense conversation with the young caller, the dispatcher was able to rely on the Enhanced 9-1-1 system ("E9-1-1"). Because of this, the dispatcher instantaneously identified Alana's home address and phone number in order to get the emergency responders to her mom as quickly as possible.

It's important to note that while the FCC doesn't currently require digital phone carriers to provide battery backups for digital phone services, it could — as long as digital phone services are classified as telecommunication services. If carriers successfully argue that the FCC cannot create public safety rules for digital phone services, the FCC might not be able to impose battery backup or other requirements on digital phone providers. Additionally, as a result of the transition to an all-digital network, the FCC might not be able to impose battery backup or other requirements on any phone provider.

Technological innovations like the development of digital telephone technology allow the creation of improved emergency services. However, no technology is a perfect solution. If we convert to an all-digital telephone network, we should benefit from the advantages that an all-digital network provides. However, in their rush to complete the transition, carriers may neglect to address the potential disadvantages of digital phone technology. In order to ensure that those disadvantages do not harm consumers, FCC and the states must be able to maintain oversight over the telephone network.

Public Safety — Reverse 9-1-1

Almost everyone knows about dialing 9-1-1 in case of an emergency, but many people are unaware that your local government can call you when there is a disaster in your area.⁵¹ “Reverse” 911 calls use recorded messages to inform residents of life-threatening events such as contaminated water or air, approaching natural disasters, or other public safety and health emergencies.⁵² Similar to E9-1-1, the reverse 9-1-1 system relies on a database of customer information that analog telephone companies must automatically provide to local emergency management agencies.⁵³ The system makes an association between the residents’ location and the site of the emergency in order to warn the appropriate responders.

Americans were recently reminded of the necessity of this system when Hurricane Sandy devastated major cities near the Atlantic.⁵⁴ Local governments immediately sent out warnings to their residents encouraging everyone to prepare for possible loss of power, flooding, and destruction of their homes.⁵⁵ Residents relied on reverse 9-1-1 calls to be their eyes and ears during the calamity as they received real-time status updates on the hurricane. In a similar situation, residents of San Bruno, CA received reverse 9-1-1 calls immediately following a catastrophic natural gas pipeline explosion, which killed eight residents and destroyed 37 homes.⁵⁶ People who do not own a TV, computer, or a smart phone tend to rely on their analog phones to receive reverse 9-1-1 calls, as do people in rural and remote places who have unreliable wireless service.

Reverse 9-1-1 systems have always been undervalued, especially during peaceful times. However, as weather patterns have become increasingly unpredictable, more and more people are opting in to receive reverse 911 or similar emergency communication systems.⁵⁷ Without reverse 9-1-1, residents might be forced to depend on cable or Internet service during a disaster — which doesn’t work when the power goes out — in order to receive news on their neighborhoods’ safety.

Similar to 9-1-1, FCC rules regarding reverse 9-1-1 systems do not apply to digital phone providers. Digital customers’ phone numbers are not automatically included in the database used by reverse 9-1-1 systems, so residents have to register by contacting their local emergency management agency. Thus, people who are not aware of this limitation are left out of the service.

Like 9-1-1 services, the FCC’s ability to protect consumers by imposing reverse 9-1-1 requirements depends on the FCC’s legal authority over digital phone service. If the FCC or the courts classify digital phone service as an information service, the FCC’s oversight will be limited, or, potentially, nonexistent. Under those circumstances, a transition to an all-digital telephone network could prevent the FCC from requiring carriers to work with public safety agencies to implement reverse 9-1-1.

Public Safety — Crisis Counseling

Many of the most vulnerable people in our society have important reasons why they must rely on telephones. Critical emergency social services are offered by phone, using toll-free numbers. To curb the growing occurrence of various types of crime and abuse, social service organizations have been offering a more accessible way for people to call for help in time of crisis, primarily through the use of toll-free hotlines.

An example of the life-saving effect of these crisis counseling numbers is the suicide prevention effort directed at helping veterans in emotional and mental crisis. The unique stress and anxiety that many veterans of recent wars suffer have left families and communities struggling to figure out how to help their loved ones. The Department of Veterans Affairs has made this issue a priority and launched a round-the-clock confidential suicide prevention helpline. Since its inception, this helpline has answered nearly 900,000 calls and allowed first responders to make 30,000 life-saving rescues.⁵⁸

1-800 numbers don’t just provide access to information and retailers — they also save lives.



Frances has lived the past two years of her life in fear for her and her children's lives because of a partner who constantly beat them. Late one night after another incident, Frances called a domestic abuse helpline and reached a counselor. The counselor made sure that Frances and her children were safe and sent out emergency transportation to pick them up and take them to an emergency clinic and shelter where she and her kids received medical attention, food, and beds to sleep in. Helplines like the one Frances called are open day and night, free of charge, and are handled by trained and knowledgeable professionals.⁵⁹

Access to quality and reliable telephone service is vital, especially after business hours, to search for assistance because emergency resources such as medical service, counseling, food and shelter, and many other social services can be quickly reached by phone.⁶⁰ These crisis helplines are critical to the survival of a great many people, and they illustrate the importance of affordable and reliable phone access. Without rules holding otherwise, carriers could charge for access to 1-800 numbers. In fact, some already do — wireless calls to “toll free” 1-800 numbers use up minutes. The analog-to-digital telephone transition could result in carriers’ charging for access to crisis hotlines, making services less accessible to individuals who desperately need them.

Public Safety — Privacy Protections

The FCC and public utilities commissions generally have the authority to impose and enforce privacy protections on telephone service providers. For example, California law requires that telephone companies allow customers to maintain an unlisted or unpublished number, and provides for penalties if a telephone company fails to do so.⁶¹ Many consumers need unlisted numbers because they are survivors of domestic violence or stalking, are the subject of criminal threats, or work in the criminal justice field. For example, a carrier that lists a police officer’s phone number and address could place the lives of that officer and his or her family in danger.⁶² If the telephone transition deprives the FCC and state agencies of the ability to protect consumers, consumers could lose important, and often critical, privacy protections.

Consumer Protection

Analog phone service is subject to a host of additional consumer protections, from in-language customer service requirements to directory assistance. Whether those protections also apply to digital phone service depends on FCC rules and state law — in some states, the state public utilities commission has no jurisdiction over digital phone service at all.⁶³

While there are far too many consumer protections to discuss all of them in this report, what follows is a sample of the kind of consumer protections that the FCC and states provide.

Companies are obligated to provide accurate and clear language describing the services included in the bill.

Consumer Protection — Billing and Customer Service

You have a right to choose the kind of phone service you want, to know what features and functionality your service includes, and to understand the charges in your bill.⁶⁴ The FCC and state utilities commissions can create rules stating that analog telephone companies must provide a plan without early termination policies, and cannot force you into purchasing additional services as a condition of receiving basic phone service.⁶⁵

Companies are obligated to provide accurate and clear language describing the services included in the bill. Additionally, once a person has subscribed to telephone service, the current consumer protections ensure that there is free access to customer service and there are available translators if the customer speaks and understands a language other than English. Thus, access to customer service does not simply mean providing customer support at a given time but to ensure that those seeking support get accurate and clear information.

Consumer Protection — Access for Individuals with Disabilities



The FCC also requires that companies provide free Telephone Relay Services (“TTY”) for individuals who have speech and hearing disabilities. TTY is a program that assists people with disabilities using the telephone by converting communication from voice to text or text to voice. Since it was invented, TTY has provided greater access and independence for disabled people to call their loved ones, communicate with medical professionals and emergency responders, and manage their own utility bills. Although there are other ways for disabled people to communicate using the Internet, many of them cannot afford reliable broadband access and have to continually rely on TTY.⁶⁶ (It’s worth noting that the use of TTY is in decline, as more and more individuals with disabilities rely on Internet applications that serve the same function.)



According to The Leadership Conference Education Fund, communities of color make up approximately 43 percent of the Medicaid population with disabilities, with blacks comprising 29 percent, Asians 2 percent, and Hispanics 7 percent, respectively.⁶⁷ Without FCC protections to ensure that individuals with disabilities (who are disproportionately from communities of color) are able to take advantage of phone services, those individuals could lose access to a critical means of communication.

Consumer Protection — Calling Cards

Latinos use calling cards at a disproportionately higher rate than other groups.⁶⁸ The FCC has found that several calling card companies have targeted immigrants to sell “fraudulent products and opaque fees.”⁶⁹ In 2011, the FCC used its oversight over telephone networks to levy fines totaling \$20 million against four calling card companies who charged hidden fees and engaged in deceptive marketing.⁷⁰ Enforcement actions like the fines imposed by the FCC punish wrongdoers and send a clear message to potential bad actors.

The analog-to-digital phone transition could result in the FCC losing its ability to monitor and fine calling card companies for these deceptive practices. Additionally, many state utility commissions could lose that authority as well. Accordingly, the analog-to-digital telephone transition could potentially harm consumers of color who, because of language barriers or unfamiliarity with their rights, are specifically targeted by fraudulent companies

Most of us take everyday telephone consumer protections for granted.

Consumer Protection — What We Take for Granted

There is a host of everyday protections for telephone customers that many people have come to take for granted. For example, because of these protections, a consumer is able to receive incoming collect calls, receive a free, printed copy of the most updated phone book, and have access to 4-1-1 or operator service. As another example, the FCC caps fees on the collect calls made from prisons, to make sure that family members of incarcerated people do not suffer the unreasonably high fees phone companies used to charge.⁷¹ In the absence of a cap, phone companies have charged up to \$17 for a 15-minute call.⁷²

Phone companies are also required to provide you with a phone book and access to operator service. Who uses these seemingly old-fashioned services? Seniors, people with disabilities, and people without Internet access at all rely on phone books and operators to connect them to a specific person or business. While those of us with smart phones and Internet access may not need those services, many people do. One possible consequence of the analog-to-digital transition is that carriers might choose to not offer those services.

Preserving Societal Benefits

It's important to note that competition can create an incentive for carriers to offer the programs and protections discussed above. For example, if two carriers charged the same price for service, but only one carrier offered access to 9-1-1, consumers would probably overwhelmingly prefer

Sometimes, competition is insufficient to ensure the societal benefits of services like 9-1-1.

the service with 9-1-1 access. However, competition does not guarantee that carriers will offer service to everyone, provide access to emergency services, or address the unique telecommunications needs of specific demographic groups. In the event that competition is insufficient, regulation can ensure that consumers have access to vital telephone services and features. It may not be profitable for a carrier to provide customer service representatives who speak the same language as limited English speakers, even though there are enormous societal benefits to in-language customer

service. In those instances, regulations make sure that we can reap those societal benefits.

It's also important to note that standards and rules that apply to telecommunications often have a "shelf life." For example, as mentioned above, there has been a significant decline in the number of consumers who use TTY services. There may come a day when the requirement to provide TTY services is no longer necessary.

However, it is important to distinguish between the need for a specific consumer protection rule and the need for consumer protection generally. While customers with hearing impairments may no longer need TTY services, they still need access to telephone service. Accordingly, we need to insure that as the telephone network changes, we engage in "smart" rulemaking. While telephone technologies have always rapidly advanced, our underlying public policies — universal service, access to emergency services, and consumer protection — have not. Technological innovation requires regulatory innovation. While we may need to eliminate some rules, we need to preserve the FCC and the states' abilities to protect consumers if it becomes necessary to do so.

POLICY RECOMMENDATIONS

“Policies that drive adoption and use are just as important as facilitating a smooth and quick upgrade of the nation’s telecommunications infrastructure.”

—Ralph B. Everett, President and CEO, Joint Center for Political and Economic Studies⁷³

We Must Protect Consumers Who are Not Part of the Analog-to-Digital Transition

Despite carriers’ claims that the analog-to-digital transition needs to happen as quickly as possible,⁷⁴ analog service is not going away, at least in the short term. Even if large carriers switch to all-digital, copper networks will still remain. Smaller, regional providers may not be able to upgrade as quickly. The FCC and the states need to ensure that customers who use analog networks still have access to the national telephone network by ensuring that analog carriers can still connect to the network.

The FCC Must Explicitly Rule that Digital Phone Service is a Telecommunications Service

The application of a specific rule or consumer protection statute shouldn’t depend on the kind of wires the carrier uses or the way the call travels, but the function of the service the carrier provides. The argument that analog and digital phone service should be treated differently neglects the plain fact that a phone call is a phone call. Smart, data-driven, equitably focused oversight of the analog phone network was a win for industry, consumers, and policymakers alike, and disproved the argument that regulation and equity stifle innovation and economic growth.

The FCC can require providers of telecommunications services to contribute to the Universal Service Fund, ensure a basic level of consumer protections, and engage in fair business practices. A majority, if not all, Americans rely on these fundamental protections. Therefore, the FCC should clarify that digital phone service is a telecommunications service, thereby ensuring that the FCC can continue to protect consumers and encourage that new communication technologies benefit everyone, and that our new all-digital telephone network is just as robust, reliable, and accessible as the old analog one.

Policymakers Must Stop Viewing Telecommunications Issues in Isolation

Independently, carriers’ requests raise concerns. For example, allowing carriers to discontinue analog networks and replace them with digital networks has the potential to result in higher prices. Classifying digital phone service as an information service would reduce or eliminate the FCC’s ability to impose consumer protection rules on digital phone providers. Classifying digital phone service as an information service would also eliminate the only consumer protections remaining in those states that have no oversight of digital phone services.

Individually, these changes all raise concerns, but the combined effects of these changes would create harms far greater than those individual changes. Unfortunately, agencies tend to focus narrowly on specific issues and fail to consider the entire telecommunications environment. Policymakers should take a more holistic approach to considering telecommunications issues in order to accurately determine the effects of changes to telecommunications policy.

Telecommunications Policymakers Must Consider Equity and Demographic Disparities when Making Policy

When policymakers implement a blanket rule that's intended to work the same way for all people, it will have very different results for differently situated individuals. Policymakers need to meet the population served where they are and design rules accordingly. Traditional telecommunications policy is full of examples where this was done well, including the high-cost support and Lifeline programs. However, the analog-to-digital transition poses a very real risk of ignoring equity in favor of a "free market," one in which every customer is out for himself, and which will not have equitable results. All policymakers (as well as carriers and consumer advocates) should consider demographic disparities and issues of equity when implementing social policies, including telecommunications policy.

CONCLUSION

Advances in telecommunications have enormous potential to benefit society.

Advances in telecommunications technology have always had enormous potential to benefit society. The transition from analog phone technology to digital phone technology is no different. A well thought-out, well-implemented transition could result in a more robust telephone network, faster and more effective emergency services, and improvements in the life of everyone who has a telephone.

While analog televisions and digital televisions use different technologies, they are both televisions. While gas and electric cars use different technologies, they are both cars. A call made on an analog telephone network and a call made on a digital telephone network may use different technologies, but both calls are telephone calls. We call upon policymakers, industry, and other stakeholders to design an analog-to-digital telephone transition that protects, enhances, and improves the universally available phone service that we have today.

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