

Subject: Potential Broadband Funding Opportunity - FCC IP Transition Order and Experiments

Hello Broadband Stakeholder,

There has been a recent order by the Federal Communications Commission that may potentially provide an opportunity for the rural, unserved areas of the state and we want to make sure that everyone knows about it and has the opportunity to investigate and potentially participate. The order is referred to as the Technology Transition Order and is part of the commissions recent effort to begin initial trials toward the transformation of the Public Switched Telephone Network (PSTN) to an IP based network. While there are several unique programs within the order, the one most applicable to rural broadband efforts is a test program that seeks potential projects to help the FCC understand how to reach the currently unserved areas of the country with high-speed broadband through pilot/test projects.

The good news is that the program's stated goals are very much aligned to the efforts all of you have been working and they are encouraging any type of entity to apply for the program. Additionally, the initial "expression of interest" require is very simple, high-level and does not need supporting details. The bad news is that this initial expression of interest is due by March 7th.

There are several attachments to this email that will help you better understand the program and it's potential impact. As with any federal program there will be requirements but at first glance this program seems to have less of them. The attachments included are:

- A high level summary of the order (includes a review of the application process). While I encourage you to read the full order, this should provide you an initial understanding.
- The full FCC Order. The entire order covers several programs, the rural broadband program is outlined on pages 31-47.
- A list of eligible census blocks. We are working on maps of these areas and will send them out ASAP.

We realize the turnaround time on this program is very tight. OIT wants to support anyone who is interested in participating and will assist however we can to help coordinate and make sure anyone who wants to submit a letter of interest can. As an initial step, I would like to offer to hold a follow up conference call (in the next day or two) with anyone who is interested in pursuing this opportunity to answer additional questions about the order and discuss how we can support your efforts. I would encourage any community representative, LTPT or planning group to get in touch with your local carrier(s) to discuss this opportunity and see if they have any current plans that may fit within this program. This is especially important in areas that have traditional, incumbent telephone service providers (ILEC or RLEC) as there are additional programs focused on them and will have the initial opportunity to serve an area.

We realize this is a very tight turnaround and could be difficult; however, I have heard from a few folks that these initial letters of interest need only basic information about the project and they (FCC) are very interested in unique, creative solutions that will test all types of technologies. The initial letters will also help determine the overall budget for the program so the more letters they get the more money that could be available.

Please respond if you are interested in a follow-up conference call to discuss further. Based on feedback I will send out a follow-up email.

Thanks!
-Brian

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FCC Next Generation Network Experiment Summary

Overview

The FCC recently released the Technology Transitions Order (“Order”, WC Docket 10-90) that deals with a variety of broadband issues and focuses on experiments to achieve specific goals, including universal broadband access. One such experiment is the Next Generation Network Experiment program and is focused on expanding broadband access to unserved, rural parts of the county.

The program is to be funded out of the Connect America Fund (CAF) and is anticipated to potentially fund projects this year. The purpose of the project is to help the FCC identify how begin the process of transitioning the Public Switched Telephone Network (PSTN) to an IP-based network. While the final process and criteria for selection are still being worked out, the initial step in the overall process is to express interest in the program based on specific projects.

The geographic areas that are available for this program have already been identified by the FCC and a list of these areas is in a separate file. These areas are based on census tract and list the number of identified locations in that census tract. There are 54 counties within Colorado that have at least one census tract that has been identified. We are working on mapping these locations.

Primary Questions the Program Seeks to Answer

1. Do the geographic and demographic characteristics of some areas economically preclude the deployment of broadband without government assistance?
2. What are the characteristics of areas that may choose to have wireless service rather than traditional wired service?
3. How will the transition to broadband affect community anchor institutions?
4. How can the FCC work with other governments (federal, state, local, tribal) to achieve universal access for broadband?

Key Elements of the Order

- Anyone can apply for this program including private entities, public entities, cooperatives (utilities) or public private partnerships. Multi-party projects are encouraged.
- The program is focused on last-mile projects
- Experiments must offer basic voice service at “reasonably comparative rates”
- Minimum speeds for service must be 4 Mbps down, 1 Mbps up.
- Funding may be in the form of one-time capital or recurring support based on a 10 year extrapolation
- Projects that include a focus on health-care, education, public safety and community

anchor institutions may receive special consideration.

- If selected for a project, the vendor must apply for Eligible Telecommunications Carrier (ETC) if they are selected but will not be subject to additional regulation for the purposes of the test.

Application Process

The process to receive an award will have several steps. The first will be an “expression of interest”, followed up by a more comprehensive formal proposal with a competitive application process (yet to be determined). The initial step, the expression of interest is intended to be a basic, high-level letter that defines the potential process. It is not expected to have the supporting structure at the time of submission and is not a binding document. The following are the elements of the letter.

- Nature of submitting entity or entities (incumbent LEC, municipality, private carrier, rural electrical cooperative, public-private partnerships, etc).
- Proposed service area (based on identified census blocks) with relevant information regarding potential customers base (including CAI’s).
- The specific broadband technology or technologies being implemented (e.g. fixed wireless, fiber, etc).
- What services will be offered
- Nature of governmental participation (if any) in the project (permitting, funding, etc).
- Whether project requires one-time or recurring and high-level estimates.

After the expressions of interest have been submitted, the FCC will determine the budget and methodology for the actual competitive application process and allow for additional time (60 days) to submit supporting documentation.

The expression of interest letter must be filed electronically and be completed by March 7th.

Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of
Technology Transitions
AT&T Petition to Launch a Proceeding Concerning
the TDM-to-IP Transition
Connect America Fund
Structure and Practices of the Video Relay Service
Program
Telecommunications Relay Services
And Speech-to-Speech Services for
Individuals with Hearing and Speech Disabilities
Numbering Policies for Modern Communications

ORDER, REPORT AND ORDER AND FURTHER NOTICE OF PROPOSED RULEMAKING,
REPORT AND ORDER, ORDER AND FURTHER NOTICE OF PROPOSED RULEMAKING,
PROPOSAL FOR ONGOING DATA INITIATIVE

Adopted: January 30, 2014

Released: January 31, 2014

By the Commission: Chairman Wheeler and Commissioners Clyburn, Rosenworcel and Pai issuing
separate statements; Commissioner O’Rielly approving in part, concurring in part and issuing a statement.

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Initial Round of Service Experiment Proposals Due:¹ **February 20, 2014**
Comments on Service Experiment Proposals Due: **March 21, 2014**
Replies on Experiment Proposals Due: **March 31, 2014**

Rural Broadband Experiment Expressions of Interest Due: **March 7, 2014**

Comments on Proposal for Ongoing Data Initiative Due: **March 14, 2014**
Replies on Proposal for Ongoing Data Initiative Due: **April 14, 2014**

Comments on Further Notices of Proposed Rulemaking Due: [30 days after date of publication in the Federal Register] [**~March 30**]

Replies on Further Notices of Proposed Rulemaking Due: [45 days after date of publication in the Federal Register] [**~April 15**]

I. INTRODUCTION

1. Today's Orders, Report and Orders, Further Notices of Proposed Rulemaking, and Proposal for Ongoing Data Initiative (Order) kickstart the process for a diverse set of experiments and data collection initiatives that will allow the Commission and the public to evaluate how customers are affected by the historic technology transitions that are transforming our nation's voice communications services – from a network based on time-division multiplexed (TDM) circuit-switched voice services running on copper loops to an all-Internet Protocol (IP) network using copper, co-axial cable, wireless, and fiber as physical infrastructure. Americans have come to expect secure, reliable, and innovative communications services. The purpose of these experiments is to speed market-driven technological transitions and innovations by preserving the core statutory values as codified by Congress – public safety, ubiquitous and affordable access, competition, and consumer protection – that exist today.² The experiments and initiatives will collect data that will permit service providers and their customers, and independent analysts and commentators – as well as the federal, State, local, and Tribal officials charged with oversight – to make data-driven decisions about these technology transitions. By using an open and deliberative process to identify and address challenges, all stakeholders will benefit as we together learn how we may ensure that our values flourish as providers implement new technologies at scale and, ultimately, seek to discontinue legacy services and facilities.

2. We must act with dispatch. Technology transitions are already underway. These ongoing transitions have brought new and improved communications services to the marketplace. Network providers have invested billions of dollars to transition legacy networks and services to next generation technologies, and over the next several years will invest many billions more. Modernizing communications networks can dramatically reduce network costs, allowing providers to serve customers with increased efficiencies that can lead to improved and innovative product offerings and lower prices. It also catalyzes further investments in innovation that both enhance existing products and unleash new services, applications and devices, thus powering economic growth. The lives of millions of Americans could be improved by the direct and spillover effects of the technology transitions, including innovations that cannot even be imagined today. The proceeding we initiate today is designed to position all the players – innovators (including those in existing lines of business), legacy service providers and manufacturers, government regulators and the general public – to prepare for, maintain, and facilitate the momentum of technological advances that are already occurring.

¹ We also welcome initial expressions of interest in service-based experiments on February 20, 2014.

² See, e.g., New and Emerging Technologies 911 Improvement Act of 2008, Pub. L. No. 110-283 (2008); 47 U.S.C. §§ 151, 160; 201; 225; 251; 254; 255.

3. Today, these technology transitions bring additional choices to consumers by largely supplementing, rather than supplanting, the legacy copper circuit-switched voice services in the marketplace. In the context of voice communications, for example, most consumers may choose to “cut-the-cord” by using only wireless voice services, or may opt for digital, packet-based voice services by relying on IP-based services. To date, these consumers by and large could revert to legacy services if their chosen alternative does not meet their needs or expectations. But, in the natural course of progress, we expect there will come a tipping point, a point where the adoption of new communications technologies reaches a critical mass and most providers wish to cease offering legacy services. This is a reflection of technological innovation and in that respect is a good thing. But it also removes a choice from the marketplace: the choice that has been the source of the enduring values for generations and the service that Congress beyond question marked as essential to all Americans.³ From this perspective, we stand today at the precipice of a very different technology transition – the turning off of the legacy suite of services that has served our nation well.

4. Our mission and statutory responsibility are to ensure that the core statutory values endure as we embrace modernized communications networks. Fulfilling this mission requires that we learn much more about how the modernization of communications networks affects consumers. Today’s Order does this along three broad directions.

5. First, we open a proceeding and invite any and all interested providers to submit detailed proposals to test real-world applications of planned changes in technology that are likely to have tangible effects on consumers. These voluntary service-based experiments will examine the impacts of replacing existing customer services with IP-based alternatives in discrete geographic areas or ways. We identify below and in the Appendix the types of information that will be useful to us in evaluating applicants’ proposals, the conditions, presumptions, and relevant factors on which proposals will be evaluated, and principles for the collection and reporting of data from any experiment. We also establish below the process and timeframe for submitting proposals. To ensure transparency and maximize public input, we will seek comment on each proposal. Within less than four months, at the Commission’s May Open Meeting, we anticipate issuing a final decision on proposals received by our first submission deadline. For proposals received later, we commit to a similarly speedy review.

6. Second, in parallel with seeking proposals for the service-based experiments, we are moving forward with targeted experiments and cooperative research to explore the impact of technology transitions that focus on universal access, one of our enduring values that must be protected and enhanced in the technology transition. These proof-of-concept initiatives are focused on new technologies for particular groups of consumers, aspects of network functions, or more effective ways to reach all Americans. One of these experiments explores ways to examine the impact of technology transitions on rural Americans, including those living on Tribal lands, and ensure that, as networks transition, they are not left behind. We seek additional comment in a Further Notice of Proposed Rulemaking on a number of issues relating to this rural broadband experiment. We also further universal access by taking the next step in developing and funding an interagency collaborative research program into IP-based technologies for individuals with disabilities. In addition, we seek to facilitate the development of a numbering testbed to address concerns raised about number assignment and databases in an all-IP world, without disrupting current systems.

7. Third, we initiate a proposal for ongoing data initiative and seek feedback below on a number of other efforts to improve our collection of data about how technological evolutions are impacting network values – data that the Commission needs to make informed decisions and speed the technology transitions. For example, we intend to reform our consumer complaint and inquiry processes and collaborate with State, local, and Tribal governments and leaders to develop a better understanding of the transition from the consumer’s perspective. In addition, we intend to conduct a structured data

³ See 47 U.S.C. § 254(c) (defining universal service as “an evolving level of telecommunications services”).

collection and analysis of next generation 911 (NG911) transition deployment projects in coordination with the Department of Transportation's National 911 Office and various other public safety associations. We seek comment on these proposals and, more broadly, on our efforts to assess what data we collect, where there are information gaps, and how we can work with outside parties to enhance our information about the technology transitions and their impact on our network values.

8. We emphasize that the goal of all of these experiments and initiatives is to learn about the impact of the technology transitions on the customers – and communities – that rely on communications networks. We are not proposing technology experiments designed to resolve technical questions. Nor are we seeking to resolve the legal and policy questions arising from the technology transitions in the context of an experiment. Rather, we endeavor to learn in diverse ways how the modernization of communications networks is affecting the achievement of our statutory responsibilities. And for that we need real-world data. These data will fuel the ongoing public dialogue about the technology transitions, ensuring that it is fact-based and data-driven. Having a robust and factually-informed public discussion will help guide the Commission as we make legal and policy choices that advance and accelerate the technology transitions while ensuring that consumers and the enduring values established by Congress are not adversely affected.

9. Although there of course remains much to do, the important mileposts described above will help guide us in the historic journey from a voice-focused communications network that would have been easily recognizable to Alexander Graham Bell to the very different all-IP networks that collectively will comprise the global multimedia communications infrastructure of the future. Though the task before us is daunting, we take comfort that we are not alone in our efforts to encourage technology transitions while protecting the enduring values established by Congress for our nation's communication networks. State, local, and Tribal governments and leaders share this challenge, along with other federal entities. We will work alongside each other to ensure that, as networks transition, public safety is assured, access is universal, competition is promoted, consumers are protected, and the nation remains well-served by its critical communications infrastructure.

II. BACKGROUND

A. Network Evolution

10. As we begin the process of exploring what the technology transitions mean for customers and our enduring values, we pause to take stock. America's first great national network was the railroad.⁴ Early railroad passengers compared their experience to being inside a projectile shot through the landscape, disorienting their sense of space and time.⁵ To some, it seemed that “[s]pace is killed by the railroad and we are left with time alone.”⁶ The telegraph would annihilate time as well. The copper wire that carried the famous words “what hath God wrought” from Washington, D.C. to Baltimore in 1844 did so, then as now, at about two thirds the speed of light.⁷ Even in 1988, describing the Internet, the

⁴ In the Pacific Rail Acts of 1862 and 1864, Congress directed two newly incorporated companies, the Union Pacific Railroad and Central Pacific Railroad, to build and operate a railroad from Council Bluffs, Iowa to the San Francisco Bay. *See* Executive Order of Abraham Lincoln Fixing the Point of Commencement of the Union Pacific Railroad at Council Bluffs, Iowa, March 7, 1864 (38th Congress, 1st Session Senate Ex. Doc. No. 27); *see also, e.g.*, Pacific Railroad Act of July 1, 1862, § 2; Pacific Railroad Act of July 2, 1864, § 18 (setting aside public right of way).

⁵ Wolfgang Schivelbusch, *The Railway Journey: The Industrialization of Time and Space in the 19th Century* 53-54, 129 (1986).

⁶ *Id.* at 37 (quoting German poet Heinrich Heine).

⁷ *See Velocity Factor*, Pic Wire and Cable, http://www.picwire.com/technical/velocity_factor.php (last visited Dec. 16, 2013) (describing the propagation velocity of electric signals through copper wire); Daniel Walker Howe, *What Hath God Wrought: The Transformation of America 1815-1848* 1, 7 (Oxford History of the United States 2009).

Washington Post marveled: “It enables a user sitting at one machine, with permission, actually to operate another machine on the network, just as if the person were in the same room.”⁸ But as networks spread and interconnected to form networks of networks, we have come to rely on them not as marvels but as necessities, and have come to expect that they will serve the public interest, bring help in emergencies, and keep us and the nation safe.

11. The economic consequences of deploying network infrastructure that can conquer space and time are enormous. The day after the final spike was driven in the Transcontinental railroad,⁹ a shipment of Japanese tea left San Francisco for St. Louis.¹⁰ Within ten years, the railroad carried \$50 million worth of freight per year across the country, and a book published in San Francisco could reach New York shops within a week.¹¹ In 1850, a mere 9,021 miles of American railway existed; by 1890, tracks covered 129,774 miles.¹² Economic historians credit the railroad with the largest contribution to American gross national product of any single innovation before 1900, even when its incalculable spillover effects are ignored.¹³

12. The economic impact of telephone networks is equally dramatic. Alexander Graham Bell patented the telephone on March 7, 1876. Most Americans saw little use for the telephone at first – and with reason, as so few people had one.¹⁴ By the early 1900s, Bell System local exchanges competed briskly for customers with rival, non-interconnecting local exchanges.¹⁵ And by 1983, more than 90 percent of America’s 85.8 million households had a telephone.¹⁶ Economic investment powered this

⁸ Barton Gellman, *Here’s How the Post Covered the ‘Grand Social Experiment’ of the Internet in 1988*, Wash. Post (Nov. 4, 2013), <http://www.washingtonpost.com/blogs/the-switch/wp/2013/11/04/heres-how-the-post-covered-the-grand-social-experiment-of-the-internet-in-1988/>.

⁹ The final spike was driven in the Utah Territory at Promontory Summit. Telegraph wires wrapped around the spike transmitted the hammer’s blow to cannons in New York and San Francisco, which fired simultaneously. See *The Impact of the Transcontinental Railroad, American Experience*, PBS, <http://www.pbs.org/wgbh/americanexperience/features/general-article/tcrr-impact/> (last visited Dec. 16, 2013) (*The Impact of the Transcontinental Railroad*).

¹⁰ See *Reception of the News in San Francisco – Inauguration of the Overland Trade with China and Japan*, N.Y. Times (May 12, 1869), <http://query.nytimes.com/mem/archivefree/pdf?res=F60F13F8395E1A7493C0A8178ED85F4D8684F9>.

¹¹ See *The Impact of the Transcontinental Railroad*.

¹² One Hundred Years of American Commerce 1795-1895 111 (Chauncey M. Depew, ed., New York, D.O. Haynes & Co. 1895).

¹³ Robert W. Fogel, *A Quantitative Approach to the Study of Railroads in American Economic Growth: A Report of Some Preliminary Findings*, 22 J. Econ. History 2, 20-21 (1962).

¹⁴ Adam D. Thierer, *Unnatural Monopoly: Critical Moments in the Development of the Bell System Monopoly*, 14 Cato J. 2 (1994), <http://web.archive.org/web/20080910224113/http://www.cato.org/pubs/journal/cjv14n2-6.html>. Alexander Graham Bell patented the telephone on March 7, 1876. Mark Twain thought investment in the new technology was “wildcat speculation” and Western Union passed up the opportunity to buy the Bell patents for \$100,000, believing the device to be only a passing novelty. *Id.*

¹⁵ See Milton L. Mueller, Jr., *Universal Service: Competition, Interconnection, and Monopoly in the Making of the American Telephone System* 7 (AEI and MIT 1997) (explaining that 45% of U.S. cities with more than 5,000 inhabitants had competing and non-interconnecting telephone exchanges from 1900 to 1915). Subscribers of one system could not speak with those of another, and 13 percent of subscribers, mostly businesses, had separate telephones from competing companies. *Id.* at 7. In a bid to extinguish the dual service system, AT&T president Theodore Vail attached the slogan “one policy, one system, universal service” to the company’s annual reports from 1907 to 1914. *Id.* at 4.

¹⁶ See Federal Communications Commission, Industry Analysis and Technology Division & Wireline Competition Bureau, *Telephone Subscribership in the United States* at 6, tbl.1 (2013), http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-306752A1.pdf.

growth. Merely developing the first usable electronic switching system was “found to have required a staggering four thousand man-years of work at Bell Labs” and to have cost \$500 million.¹⁷ Between 1996, when the telephone network was broadly opened to competition, and 2001, a torrent of new investment deployed over 200,000 miles of trenches and approximately 18 million miles of fiber – enough fiber to circle the equator 750 times.¹⁸

13. The growth of our nation’s wireless infrastructure tells a similar story. Since 1997, wireless use has grown from 5.8 billion minutes per month to 187.8 billion minutes per month in 2012; the number of cell sites has grown from 51,600 cell sites in 1997 to 301,779 cell sites in 2012; and industry annual revenue has grown from \$27.4 billion in 1997 to \$185 billion in 2012.¹⁹ “Wireless only” households have grown from “n/a” in 1997 to 38.2 percent in 2012.²⁰ More impressive still, the wireless industry reports a penetration rate of “102.2 percent,” meaning our nation now has more wireless devices than people.²¹

14. But progress does not stop once a network is built. Technology continues to evolve, and networks incorporate these innovations. The result is better and faster services for consumers, thus changing expectations and creating demand for more. Most of these innovations are unremarkable – incremental improvements that may not even be perceptible to network users. But over time, the accretion of thousands of technological improvements sometimes raises questions as to whether one service is being discontinued in favor of another – a modern day version of the Ship of Theseus.²² In addition, some technologies improve to the point where they come to displace other technologies outright. When this happens, providers may overbuild their legacy networks with new networks, and may seek to turn off their legacy services and retire their legacy facilities in favor of the modern alternatives.²³

15. Technology transitions mark progress and are a good thing – sometimes even a triumph. But change on this scale can also be disruptive. Customer expectations may become unsettled, established business models may crumble as the assumptions on which they are built become outdated, and the rules of the road may be called into question through the uncertain application of existing rules to new technologies. These changes can ripple throughout society, requiring accommodations and investments by those affected. While technology transitions always risk unsettling particular

¹⁷ John Brooks, *Telephone – The First Hundred Years* 279 (1975).

¹⁸ Allan Shampine and Hal Sider, *The Telecom Boom and Bust, Their Losses, Our Gain?* at 2, fig.1, http://www.milkeninstitute.org/publications/review/2007_10/54-60mr36.pdf.

¹⁹ *Wireless Quick Facts*, CTIA The Wireless Association, <http://www.ctia.org/your-wireless-life/how-wireless-works/wireless-quick-facts> (last visited Dec. 20, 2013) (*Wireless Quick Facts*).

²⁰ Stephen J. Blumberg and Julian V. Luke, National Center for Health Statistics, Centers for Disease Control, *Wireless Substitution: State-level Estimates from the National Health Interview Survey* at 5, tbl.1 (2013).

²¹ *Wireless Quick Facts* (dividing the total number of active devices, including smartphones, feature phones, tablets, etc., by the total population of the United States and its territories).

²² Willard Van Orman Quine, *Word and Object* 3-4 (1960) (popularizing this analogy and stating that “if we are to rebuild it, we must rebuild plank by plank while staying afloat in it” and can avoid rupture “because at each alteration we keep the bulk of it intact as a going concern”).

²³ Rarely do major technology transitions result in the immediate extinction of legacy services, which frequently remain as specialized offerings or in limited geographic areas. Western Union sent its last telegram in the United States on January 27, 2006, scores of years after telephone service was pervasive and about the same time comScore reported that approximately 152 million Americans were currently using the Internet. See Shelly Freierman, *Telegram Falls Silent Stop Era Ends Stop*, NY Times (Feb. 6, 2006), <http://www.nytimes.com/2006/02/06/technology/06telegram.html>; see also Press Release, comScore Networks, *694 Million People Currently Use the Internet Worldwide According to comScore Networks* (May 4, 2006), <http://ir.comscore.com/releasedetail.cfm?releaseid=245312> (reporting over 152 million unique Internet visitors over the age of 15 in the United States as of March 2006).

expectations, such changes also pose societal risks. If technology transitions are implemented with insufficient regard for customers, the enduring and shared network values may be sacrificed – a result that should be unacceptable to all.

16. We are focused on three key technology transitions that significantly affect customers. These changes are ongoing, and will continue for years. First, providers are migrating to new general-purpose transport networks – that is, providers are migrating to underlying infrastructures that are different from the equipment found in the legacy networks that were designed initially with voice communications in mind. In particular, circuit-switched providers are increasingly transitioning switched voice services from legacy TDM and Signaling System No. 7 (SS7) networks to Session Initiation Protocol (SIP)/IP networks.

17. Second, the transition to SIP/IP-based transport and signaling enables an ongoing technological transition at the application layer: specifically, providers, and third parties, are transitioning customers' services from purpose-built networks to new applications that can ride over more general broadband transport networks. Most notably, TDM-based switched voice services are being replaced in many places by interconnected Voice over Internet Protocol (VoIP) services that rely on SIP/IP networks, and Voice over LTE (VoLTE) services will soon be widely available on LTE wireless networks.

18. Third, the physical layer of last-mile technology is changing. Historically, the physical medium over which fixed end-user communications were predominantly transmitted consisted of twisted pairs of copper wire, which have served us well for over a century. Now providers in many places are sending communications over a diversity of physical platforms. In addition to twisted copper pair, providers today are increasingly using fiber optic cable, co-axial cable, and wireless technologies for fixed end-user voice and data transmissions.

B. Procedural History

19. On November 7, 2012, AT&T filed a petition asking the Commission to consider conducting trial runs of the transition to next generation services, including the retirement of TDM facilities and service offerings and their replacement with IP-based alternatives.²⁴ AT&T's Petition further requests the Commission to invite incumbent local exchange carriers (LECs) to propose individual wire centers for these experiments.²⁵ The proposals would submit plans identifying in each wire center the steps the carrier would take, and the modifications each carrier would make to its network, to transition from TDM- to IP-based facilities and services.²⁶

20. On November 19, 2012, the National Telecommunications Cooperative Association (NTCA) filed a petition asking the Commission to “initiate a rulemaking to examine the means of promoting and sustaining the ongoing evolution of the Public Switched Telephone Network” from TDM to IP.²⁷ NTCA's petition urges the Commission to seek comment on whether certain regulations should be eliminated, retained, or modified to further the Commission's statutory objectives of consumer protection, competition, and universal service.²⁸ On December 14, 2012, the Commission sought comment on the AT&T and NTCA Petitions.²⁹

²⁴ AT&T Petition to Launch a Proceeding Concerning the TDM-to-IP Transition, GN Docket No. 12-353 (filed Nov. 7, 2012) (AT&T Petition).

²⁵ *Id.* at 6.

²⁶ *Id.*

²⁷ Petition of the National Telecommunications Cooperative Association for a Rulemaking to Promote and Sustain the Ongoing TDM-to-IP Evolution, GN Docket No. 12-353 (filed Nov. 19, 2012) (NTCA Petition).

²⁸ *Id.* at 11.

²⁹ See *Pleading Cycle Established on AT&T and NTCA Petitions*, Public Notice, GN Docket No. 12-353, 27 FCC Rcd 15766 (2012).

21. On May 10, 2013, the Technology Transitions Policy Task Force (Task Force) released a Public Notice seeking comment on potential trials to explore technology transitions issues.³⁰ The *Technology Transitions PN* proposed to initiate real-world trials to gather a factual record to help determine what policies are appropriate to promote investment and innovation while protecting consumers, promoting competition, and ensuring that emerging IP-based networks remain resilient.³¹ The *Technology Transitions PN* also sought comment on several potential trials relating to the ongoing transitions from copper to fiber, from wireline to wireless, and from TDM to IP.³²

III. VOLUNTARY SERVICE-BASED EXPERIMENTS (ORDER IN GN DOCKET NOS. 13-5 AND 12-353)

22. To the extent described below, we grant AT&T's petition.³³ Specifically, we initiate a proceeding and establish a framework within which providers can conduct what we will call "service-based" experiments. Service-based experiments are experiments in which incumbent providers seek to substitute new communications technologies for the TDM-based services over copper lines that they currently are providing to customers, with an eye toward discontinuing those legacy services and in which others may propose new and innovative services that bring benefits to consumers while preserving the enduring values of our nation's communications networks. As requested by AT&T, we hereby solicit prompt, detailed proposals for service-based experiments in diverse but limited arenas. We set forth below – with additional guidance provided in an Appendix – what information we believe will be relevant and useful in evaluating any proposal; the values-based conditions, presumptions, and relevant factors on which proposed experiments will be evaluated; the data we would expect providers to collect and report; and a process for proposal submission, public comment, and Commission evaluation and decision at the May Commission meeting.

A. Experiments to Examine Potential Impacts on Network Values

23. Our over-arching purpose in soliciting these service-based experiment proposals is to speed technological advances³⁴ by preserving the positive attributes of network services that customers have come to expect.³⁵ These statutory values include "four enduring values that have always informed communications law – public safety, universal service, competition, and consumer protection."³⁶

24. The values themselves are interdependent and mutually reinforcing. For example, the existence of a network that reliably allows users to dial 911 in an emergency to obtain help reinforces the importance of universal access to that network. Moreover, there is no choice between embracing

³⁰ *Technology Transitions Policy Task Force Seeks Comment on Potential Trials*, Docket No. 13-5, Public Notice, 28 FCC Rcd 6346 (2013) (*Technology Transitions PN*).

³¹ *Id.*

³² *Id.*

³³ We recognize and take seriously the legal and policy questions arising from the technology transitions. While we do not act today on the petition filed by NTCA, we do intend to move effectively to address those broader legal questions in a manner that will enhance, not delay, the technology transitions.

³⁴ Stmt. of Comm'r Ajit Pai on Public Notice of Technology Transitions Policy Task Force (May 10, 2013), <http://www.fcc.gov/document/pais-statement-public-notice-technology-transitions-task-force> (stating that the Commission can "embrace the future by expediting the IP Transition").

³⁵ See generally Public Knowledge, *Five Fundamentals for the Phone Network Transition* (July 2013), <http://www.publicknowledge.org/files/PKThinks5Fundamentals.pdf>.

³⁶ Stmt. of Comm'r Jessica Rosenworcel Before the Subcommittee on Financial Services and General Government Committee on Appropriations United States Senate, A Review of the President's FY2014 Funding Request and Justification for FCC (Sept. 11, 2013), <http://www.fcc.gov/document/commissioner-rosenworcel-senate-hearing-fcc-fy2014-appropriations>.

technological transitions and protecting values. Rather, preserving network values advances the technological progress. By the same example, a new communications technology that failed to provide reliable 911 service would not be widely adopted as a replacement for legacy technologies that offer that functionality.

25. We state again that these service-based experiments are not intended to test technologies *per se* or to resolve legal or policy debates.³⁷ Rather, we seek to create arenas of innovation where providers and their competitors, and the customers of each, are free to explore a variety of approaches to resolving any operational challenges that result from transitioning to new technology and that may impact users. We believe that such an environment is more likely to emerge if applicants are freed, to the extent possible, from the necessity of calculating the rippling legal and policy ramifications of each new action. We therefore emphasize that decisions about how to address or resolve a problem or dispute during an experiment will not constitute a determination by the Commission or service providers that such an approach represents binding legal or policy obligations outside the context of the experiment.³⁸ For example, if a provider exchanges VoIP traffic in a wire center without first converting it to TDM, that provider shall not be deemed to have conceded – nor will the Commission have determined – that VoIP traffic is subject to interconnection obligations. The data generated as a result of these experiments will deepen our understanding of the effects of the technology transitions on consumers with respect to core statutory objectives. This understanding will enable the Commission to make data-driven legal and policy choices that protect consumers and our enduring values, while also advancing and accelerating the technology transitions.

26. To protect the enduring values, we set forth criteria for experiments below along the following framework:

- **Conditions.** We provide below a basic set of values-based conditions that any proposed experiment must satisfy. For example, applicants must ensure reliable and uninterrupted 911 service during an experiment. We expect experiments to comply with the Commission’s existing rules.³⁹
- **Presumptions.** In addition to these set conditions, we provide rebuttable presumptions that will guide our evaluation of proposed experiments. In this regard, applicants might submit evidence to demonstrate that the experiments will satisfy the statutory objectives in other ways and that full compliance with all applicable rules would impede the experiment and is unnecessary to protect the public interest. For example, we presume below that applicants will adhere to existing intercarrier compensation requirements in any experiment, but will consider applications that argue that a deviation from those rules is justified and in the public interest in the context of a particular experiment.
- **Relevant Factors.** Finally, there are values-based areas of interest and relevant factors that the public and the Commission will have to consider in order to evaluate and provide feedback on a particular experiment. We discuss these considerations below in order to provide guidance to

³⁷ See, e.g., Cox Comments, GN Docket No. 13-5, at 4-6 (arguing that experiments should not be used to evaluate legal and regulatory reform in part because an experiment “is an artificial environment that cannot reflect the inequities in market power” and that knowledge that a trial is intended to address particular regulatory issues would provide participants with “significant incentives to manipulate events to achieve desired regulatory results”).

³⁸ We clarify that our intention is that generally applicable law shall still apply, and we are not, for example, suggesting that contracts entered into during the experiment would not be binding according to their terms and any generally applicable law.

³⁹ Our evaluation of any experiment proposal will be governed by our responsibilities under the Communications Act of 1934, as amended (the Act), including the requirement to serve the public interest. The framework set forth above is intended to guide applicants as to our expectations in light of these responsibilities.

applicants in preparing their applications, so that they can readily identify the types of information that we will find useful and necessary to guide our review.

27. By adopting this framework of mandatory conditions, rebuttable presumptions, and relevant factors, we hope to create a transparent and efficient process that will afford applicants flexibility, ensure public input, and allow us to move swiftly. In Appendix B, we provide further guidance on what we would find most useful in proposals so that applicants can demonstrate compliance with these conditions, to either support or refute the presumptions, and to address the Commission's concerns.

28. We re-emphasize that our adoption of conditions and presumptions does not dictate what specific requirements the Commission might apply long-term, outside the narrow context of technology transition experiments.⁴⁰ The conditions and presumptions we set forth below shall not have specific binding legal or policy effect outside the context of the experiments except insofar as the Commission subsequently determines otherwise.

29. We envision that the first round approval(s) of service-based experiments will serve as a prototype that will be followed in evaluating succeeding service-based experiments absent a good reason to change course. This approach has several advantages. First, it will be easier for the Commission and all stakeholders to compare data across different service-based experiments. Second, it sets clear expectations for providers proposing successor experiments as to our expectations and requirements. Finally, it will speed the approval process for subsequent proposals.

B. Open Solicitation for Service-Based Experiments

30. We invite proposals for service-based experiments from all types of providers of network services and encourage a diversity of applicants. Because providers of all types are migrating to next generation technologies, we find value in soliciting experiment proposals from a diverse array of network providers, including but not limited to incumbent LECs, competitive LECs, cable operators, fixed and mobile wireless services providers, providers of carrier Ethernet exchange services, electrical co-ops, municipalities, and 911 service providers.⁴¹ Proposals may be sponsored by multiple entities working together. Diversity among providers is likely to shed light on a wider variety of consumer impacts than would a set of experiments involving only a single type of provider. Different types of providers use different technologies; for example, whereas LECs often rely on twisted copper pair, cable operators frequently rely on hybrid fiber co-axial cable to serve customers. Even providers of the same type (e.g., two incumbent LECs), however, may use different equipment and technology and follow different operational processes. We also encourage geographic diversity. We seek experiments that cover areas with different population densities and demographics, different topologies, and/or different seasonal and meteorological conditions. The lessons learned from an increased diversity in experiments could lead to the development of innovative solutions to common problems, or other public interest benefits.⁴²

⁴⁰ We note that the records for many of the issues related to the evaluation criteria we adopt below are still being developed and evaluated in various Commission dockets. We find that delaying the initiation of experiments until most of those issues are resolved would result in unwarranted delay, given the benefit in gathering earlier data on how customers are affected by these technology transitions.

⁴¹ See IntelPeer Comments, GN Docket No. 12-353, at 2 (stating that the Commission should “foster participation in any trials by providing incentive to a breadth of incumbent, rural and competitive local exchange carriers (‘LECs’), as well as wireless, cable and VoIP providers, to produce the most beneficial results”); HyperCube Comments, GN Docket Nos. 12-353, 13-5, WC Docket No. 10-90, at 5-6 (stating that the Commission must “set ground rules that encourage participation by a variety of types of carriers and that take into account the vast differences in circumstances among types of carrier offices”).

⁴² The Commission may decline to consider or approve any proposal under this framework from a provider that is “red-lighted,” that is out of compliance with any Commission obligations, or that is otherwise determined to pose a risk to consumers that is not outweighed by the benefits of permitting the provider to participate in the trial. Under

(continued....)

31. As AT&T has suggested, any request for Commission authorization of a service-based experiment in this proceeding should be accompanied by a detailed plan that will be put out for public comment.⁴³ This will allow for “an open, frank and informed dialogue” regarding the proposed experiments and will facilitate our speedy evaluation.⁴⁴ Applicants should provide any and all information about their proposed experiments that they believe the Commission or the public would find useful or persuasive in making a determination as to the merits of conducting the experiment. To the extent there is a question as to whether particular information would be of interest to the Commission or public, applicants should err on the side of providing it.

32. These experiments are voluntary on the part of the providers. No provider will be forced to participate in an experiment, and no provider, once an experiment has been initiated, will be forced to continue an experiment if it otherwise decides the experiment is no longer worth pursuing and it should simply revert to previously-offered services.⁴⁵

C. Experimental Design Features for Service-Based Experiments

33. We welcome service-based experiments with diverse designs. All proposals will be subject to public comment and thorough Commission evaluation of whether initiation of the proposed experiment is in the public interest. No experiment can be initiated in a manner that requires existing customers to participate. To the extent that providers wish to temporarily stop offering new deployments of legacy services (e.g., to new customers) at the initiation of an experiment, Section 214 requires providers to obtain authority to discontinue, reduce, or impair service.⁴⁶ After successful initiation of an experiment, the Commission is prepared to consider additional requests to withdraw the offering of legacy services, including the withdrawal of legacy services to all customers within the geographic location of a service-based experiment under Section 214. The Commission commits to consider such requests in a timely manner, and in all cases take no longer than 3 months from the date of public notice of such a request. In making that determination, the Commission will consider, *inter alia*, whether ongoing experiments have met defined service benchmarks, whether the withdrawal of legacy services is necessary in order to permit the Commission to fully understand the impact of the use of all-IP networks on defined categories of customers and uses, and the likely impact on the enduring values of public safety, universal access, competition, and consumer protection. We note that all Section 214 authorizations granted during an experiment are conditional, and no provider may permanently terminate

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the red light rule, applications and other requests for benefits filed by parties that have outstanding debts owed to the Commission will not be processed. *See* 47 C.F.R. § 1.1910.

⁴³ *See* AT&T Reply, GN Docket No. 13-5, at 10 (proposing that applicants submit “a detailed plan identifying, *inter alia*, the geographic area in which it proposes to conduct the trial, the specific TDM-based services that will be discontinued in that area, the alternative wireless and wireline IP-based services that it will offer in place of those services, the other competitive alternatives available in that area, a proposed schedule for transitioning customers to alternatives and discontinuing existing services, information about the notice the carrier will provide to the public and any affected parties, information about any physical or other changes the carrier plans to make to its network, whether new or additional CPE may be required, and other information implicating important public interest considerations”).

⁴⁴ AT&T Reply, GN Docket No. 13-5, at 11.

⁴⁵ However, any information gathered during that experiment, would be important information for the Commission to consider, and we expect that any provider would need to at least inform the Commission that it is no longer pursuing the experiment, and provide the Commission with any relevant data.

⁴⁶ 47 U.S.C. § 214(a), 47 C.F.R. §§ 63.63, 63.71; *see also* 47 C.F.R. §§ 20.15(b)(3), 63.19(c) (exempting CMRS from section 214 discontinuance requirements). The Commission also has extended its section 214 discontinuance requirements to providers of interconnected VoIP service, regardless of the ultimate classification of interconnected VoIP service. *See* 47 C.F.R. § 63.60(a); *IP-Enabled Services*, Report and Order, 24 FCC Rcd 6039 (2009).

the offering of legacy services until and unless it receives a “final” approval in which the Commission determines that action to be in the public interest.

34. All proposals must provide sufficiently detailed information about how the experiments will be designed to allow meaningful public comment and thorough Commission evaluation of the proposed experiment. In order to allow for such meaningful review, we expect that we will need to evaluate the following, with further guidance provided in the Appendix:

- The purpose and proposed metrics for measuring success;
- Experimental scope or arena (which could be a geography, product, or service offering);
- Technical parameters, including description of any physical or other network changes and how they will: (a) affect customers and other providers and (b) impact product or service offerings;
- Timelines for experiment, including timelines for the proposed network changes, the timing of any impacts on customers, and when the experiment is likely to be complete;
- What temporary regulatory relief or other Commission action would be required to conduct the proposed experiment.

D. State, Tribal, and Other Government Entities

35. We value the expertise of State commissions and Tribal leaders and respect the federalism inherent in our national approach to communications laws. More generally, it is important that all relevant stakeholders be fully engaged in the discussions these experiments will generate.⁴⁷ Accordingly, after receiving a proposal for an experiment, the Commission will notify and consult with the appropriate State public utility commissions and any other governmental entities, including Tribal governments, having jurisdiction in the geographic area affected by the experiment or over the affected services. By notifying other government entities, we improve transparency and facilitate these entities’ active participation in this proceeding. We encourage other government entities to provide feedback on any proposed service-based experiment and, in particular, on the experiment’s implications for the affected jurisdictional area or services.

36. It will be important to our evaluation of applications to understand what, if any, authorizations or approvals applicants expect to require from other government entities, including other federal entities, and State, local, and/or Tribal governments. We adopt a rebuttable presumption that service-based experiments will comply with all applicable State laws and regulations. As such, we presume that applicants will either propose experiments that do not require approval from the State or other jurisdiction,⁴⁸ or that the applicants will obtain such approval directly from the relevant authorities.

⁴⁷ State PUCs that submitted comments in this proceeding seek to ensure adequate oversight and oppose the use of experiments to undermine State regulations and commitments. *See* Mich. PSC Reply, GN Docket No. 12-353, at 11-13 (contending that the TDM-to-IP transition will proceed more successfully if State PUCs play a prominent role because they are familiar with the “geography, and relevant players and information within the local wire centers”); *see also, e.g.*, Cal. PUC Comments, GN Docket No. 12-353, at 15; NJBPU Reply, GN Docket No. 12-353, at 2.

⁴⁸ AT&T has stated that it is “not asking the Commission at this time to preempt any state law or regulation” and that it is “confident that appropriate test wire centers can be found in states that have already removed state-law obstacles to these trials or that embrace the need for such trials and will thus eliminate such obstacles in discrete wire centers.” AT&T Reply, GN Docket No. 12-353, at 3. *But see, e.g.*, Cal. PUC Jan. 28, 2013 Comments, GN Docket No. 12-353, at 13 (questioning the Commission’s “authority to pre-empt state jurisdiction over intrastate services, such as provision of POTS, COLR obligations, rules pertaining to service quality or service withdrawal, rules pertaining to consumer protection, rights-of-way, pole attachments, and other state regulations”); Pa. PUC Comments, GN Docket No. 12-353, at 3, 7; BroadBand Inst. of Cal. and BroadBand Regulatory Clinic Reply, GN Docket No. 12-353, at 6; Mich. PSC Reply, GN Docket No. 12-353, at 4-5; NASUCA Reply, GN Docket No. 12-353, at 21, 22; NECA Reply, GN Docket No. 12-353, at 5.

In reviewing a request from an applicant to rebut this presumption, we will evaluate evidence demonstrating the legal basis and grounds for any requested preemption.⁴⁹ If applicants successfully rebut the presumption, the Commission will take appropriate action to preempt State laws as necessary.

E. Protecting Enduring Values in Service-Based Experiments

37. As discussed above, through these service-based experiments we seek both to advance new network technologies and learn how best to protect and enhance the core statutory values of public safety, universal access, competition, and consumer protection when the time comes that legacy systems may no longer be available. To both preserve these values and encourage the transition, we set forth below the values-based conditions, rebuttable presumptions, and relevant factors that will guide our evaluation of proposed experiments. Where these conditions, presumptions, and relevant factors reference our existing regulations, normal rules of forbearance and waiver will apply.⁵⁰ For example, applicants may request that the Commission waive a mandatory condition in an experiment by making a good cause showing that strict compliance is inconsistent with the public interest.⁵¹ Such requests should be accompanied by a good cause demonstration that a waiver is necessary to the experiment and that the experiment has sufficient value to justify the waiver. The Appendix provides further guidance on the information we would find important to our evaluation to demonstrate compliance with the mandatory conditions, to either support or rebut our presumptions, and address other relevant factors raised by the Commission, as applied to the proposed experiment.

1. Public Safety & National Security

38. Public safety, emergency preparedness and response, and national security are fundamental government functions that must be addressed as technologies transition. Any experiment therefore must protect these functions and their attendant requirements, including the ability of the public to reach 911, first responders, and other emergency response authorities; the ability to provide alerting and other emergency information to the public; provision for assistance to law enforcement; reliable, robust, and redundant support for critical national security users and systems; and the protection of first responder radio systems and other wireless communications systems used for public safety-related communications.⁵² We summarize these issues below and provide additional guidance in each case in the Appendix.

⁴⁹ See Letter from Wally Bowen, Executive Director, Mountain Area Information Network, to Marlene H. Dortch, Secretary, Federal Communications Commission, GN Docket No. 13-5 (filed Mar. 15, 2013) (urging preemption of State restrictions on municipal broadband networks and highlighting that local ownership of electric networks helped achieve universal service); see also AT&T Petition at 15-18 (asserting that various state-level regulations assume the use of TDM technology and serve to lock ILEC investments into obsolete technologies, thereby impeding investment in and deployment of IP networks); AT&T Jan. 28, 2013 Comments, GN Docket No. 12-353, at 4; Free State Comments, GN Docket No. 12-353, at 10; TechFreedom Comments, GN Docket No. 12-353, at 11; Verizon Comments, GN Docket No. 12-353, at 31.

⁵⁰ Applicants may seek temporary waivers of or forbearance from our rules in the usual manner. See 47 C.F.R. §§ 1.3, 1.44, 1.53; see also Appendix, Section II.E.

⁵¹ See 47 C.F.R. § 1.3; *Northeast Cellular Telephone Co. v. FCC*, 897 F.2d 1164, 1166 (D.C. Cir. 1990) (finding waiver appropriate where special circumstances warrant a deviation from the general rule, and such a deviation will serve the public interest).

⁵² Although we anticipate that many experiments primarily will address the ongoing technological evolution of wired infrastructure (e.g., copper-to-fiber), we are, nevertheless, committed to preserving the operational integrity of public safety radio systems, many of which are relied on for mission-critical communications. We will, therefore, expect providers to take steps, as necessary, to ensure that any proposed experiment would not subject public safety radio systems to harmful interference, compromise existing interoperability among such systems, or diminish the network capacity available to users of these systems. We also invite providers to identify any aspects of a proposed experiment that could improve internal public safety communications, for example by providing public safety users with an expanded array of voice and data service offerings.

a. Conditions

39. *Preserve 911/E911 and Next Generation 911 Capabilities.* Reliable 911 services are essential to ensure that consumers receive effective and timely public safety response in emergencies. Thus, any service-based experiment can in no way diminish consumer access to 911/E911 emergency services.⁵³ We further require any experiment to ensure that PSAPs continue to receive all consumer, phone identifying, and automatically-provided street address location information associated with a 911/E911 call, consistent with existing Commission rules and regulations. Likewise, we expect PSAPs to be provided with at least the same level of network access, resiliency, redundancy, and security that they enjoy under agreements and tariffs currently framing the legacy emergency network.⁵⁴

40. *Safeguards to Ensure Public Safety Functionality in Adverse Conditions.* In the event of a public safety failure in the course of a service-based experiment, the provider must be able to immediately fix the IP-based service, restore its legacy service, or provide a comparable service. For these purposes, a “public safety failure” is a failure to comply with one or more of the public safety conditions or un rebutted presumptions in this Order, and would trigger the obligation to fix the IP-based service, restore legacy service, or provide a comparable service to the degree necessary to restore the compromised public safety function.

41. We expect all experiment proposals to protect public safety functionality, and that there will be safeguards in place to maintain the connectivity and public-safety functionality of the underlying the IP-based service, legacy service, or a comparable service when the proposed experiment encounters adverse conditions. Similarly, applicants must restore their current level of service, either by fixing the IP-based service, reverting to legacy TDM facilities, or through some other fall-back mechanism, in the event public safety is compromised (i.e., approved public service level objectives and performance are not met) during the course of the experiment.⁵⁵

42. *Protect Essential Communications Services for Safety of Life and National Security.* Experiments will not be permitted to threaten our country’s essential national security and public safety communications systems. The Department of Defense and other Federal executive branch agencies, such as the Federal Aviation Administration, maintain communications systems that today rely heavily on legacy TDM-based networks and services.⁵⁶ In some cases, transition to other technologies including IP

⁵³ All telecommunications carriers are required to transmit all 911 calls to PSAPs. See 47 C.F.R. § 64.3001. VoIP providers are obligated to provide E911 capability to consumers and transmit all 911 calls, including ANI or p-ANI and registered location, to the PSAP. Owners and controllers of 911 capabilities must provide access to VoIP providers to facilitate 911 call transmission. See 47 C.F.R. §§ 9.1-9.7. CMRS providers (with limited exclusions) are obligated to provide Basic 911 service by transmitting all wireless 911 calls to PSAPs, and Phase I or Phase II enhanced 911 services to requesting PSAPs (including location information). See 47 C.F.R. § 20.18. Mobile-Satellite Service providers are obligated to provide Emergency Call Center service. Emergency Call Center personnel must determine the caller’s phone number and location and then transfer or otherwise redirect the call to an appropriate PSAP. See 47 C.F.R. § 25.284.

⁵⁴ See *Improving 911 Reliability; Reliability and Continuity of Communications Networks, Including Broadband Technologies*, PS Docket Nos. 13-75, 11-60, Report and Order, FCC 13-158 (rel. Dec. 12, 2013) (*911 Network Reliability R&O*) (requiring 911 service providers to certify annually that they have implemented certain industry-backed best practices or taken alternative reasonable measures to provide reliable 911 service).

⁵⁵ See, e.g., NYPSC Comments, GN Docket No. 13-5, at 3-4 (stating that existing wireline service should remain “intact and available”); Cal. PUC Comments, GN Docket No. 13-5, at 7-8 (“It is crucial that existing infrastructure should be preserved, so the trials will be fully reversible.”).

⁵⁶ See DoD/ FEA Comments, GN Docket No. 13-5, at 2-4; 4-6; see also Harris Comments, GN Docket No. 13-5, at 2-4; Harris Comments, GN Docket No. 12-353, at 1-3,7-11; AARP Reply, GN Docket No. 12-353, at 19; Neb. RIC Reply, GN Docket No. 12-353, at 9 (urging careful review of Harris’s comments because Harris oversees the operation of the FAA’s Telecommunications Infrastructure (FTI) Program, which is the primary means through which the FAA acquires the telecommunications services required for its National Airspace System (NAS)).

networks could cripple communications services vital to public safety and national security.⁵⁷ As such, experiments must allow for the continuation of legacy TDM-based networks and services for such critical governmental systems until it is proven that other solutions can meet system requirements for the performance of safety of life and national security missions. Thus, in evaluating proposals we must be able to confirm that there will be no disruption to national security, emergency preparedness, and public safety operations that today depend on existing TDM-based communications services.⁵⁸

43. *Ensure Network Security.* Network security must be maintained in experiments and as technologies evolve. A number of commenters cite network security as an important consideration in managing the transition to IP-based network architectures.⁵⁹ We share the concern expressed in the record that an IP-based communications network increases the potential for cybersecurity threats.⁶⁰ We therefore expect to evaluate whether an experiment has taken reasonable measures to ensure that the network services it intends to deliver over IP-based facilities during the proposed experiment are protected from cybersecurity threats and vulnerabilities.

44. *Ensure Adequate Backup Power.* Some commenters believe legacy copper networks have a reliability advantage over a fiber-based or wireless network because the last-mile copper carries an independent source of power that preserves service during emergencies when the electric power grid fails.⁶¹ In the *911 Network Reliability R&O*, the Commission adopted rules that require covered providers “to certify annually whether they have sufficient, reliable backup power in any central office that directly serves a PSAP to maintain full service functionality, including network monitoring capabilities, for at least 24 hours at full office load.”⁶² Any experiments we would authorize under this framework must comply with these rules, and we must be able to evaluate the measures that will be taken to maintain communications services in the event of a power outage. In particular, it will be critical to our analysis to understand how applicants will provision backup power, both for facilities within the provider’s network and for end-user equipment located at customer premises.⁶³

⁵⁷ Harris Comments, GN Docket No. 12-353, at 1-2, 5-7, 7-10.

⁵⁸ DoD/FEA Comments, GN Docket No. 13-5, at 2-4; Harris Comments, GN Docket No. 13-5, at 2-4; Harris Comments, GN Docket No. 12-353, at 1-3; 7-10; AARP Reply, GN Docket No. 12-353, at 19.

⁵⁹ See, e.g., APCO Comments at 5, Harris Comments at 5-7, IntelPeer Comments at 9, T-Mobile Comments at 12.

⁶⁰ Harris Comments, GN Docket No. 13-5, at 5-7 (citing concerns with denial of service, eavesdropping/interception and communication isolation in regards to wireless trials); CCIA Reply, GN Docket No. 12-353, at 13; BIC and BRC Reply, GN Docket No. 12-353, at 8, 16; Advanced Communications Law & Policy Institute Reply, GN Docket No. 12-353, at 43-44 (stating that issues relating to preserving the integrity of the physical network infrastructure will also manifest as part of the broader legal and policy concerns with any such transition). For example, CCIA states that incumbent LEC network facilities are critical infrastructure for U.S. national security, and that releasing Internet access providers and networks from carrier of last resort obligations could endanger public utilities and transportation systems. CCIA Reply, GN Docket No. 12-353, at 13 (citing concerns about increased vulnerability for public utilities and transportation systems).

⁶¹ See, e.g., Ind. URC Comments, GN Docket No. 12-353, at 2; Interisle Comments, GN Docket No. 12-353, at 8 (maintaining that the PSTN has responsibilities, such as reliable 911 calling, that are not well suited to the Internet’s operational model); Mich. PSC Reply, GN Docket No. 12-353, at 14-15; TechFreedom Comments, GN Docket No. 12-253, at 8 (stating that a copper network, unlike a fiber network, powers phones even when the electrical grid goes down during emergencies).

⁶² *911 Network Reliability R&O* at paras. 106-07.

⁶³ NASUCA Reply, GN 12-253, at 17-18; David Leshner Comments, GN Docket No. 12-353, at 1-2 (discussing Verizon’s FiOS and AT&T’s outages in the wake of Hurricane Sandy). *But see* Verizon Reply, GN 12-253, at 34 (stating that non-metallic fiber and 4G LTE are generally more resilient, and face lower outage risks than legacy copper due to weather events, aging, water damage, corrosion, and lightning).

45. *Report Network Outages.* Various classes of communications providers, including providers of TDM voice services, must report network outages to the Commission that exceed specified thresholds of impact on consumers and critical services, and in some instances providers must also provide notification to affected PSAPs.⁶⁴ Accordingly, we are more likely to be persuaded that our public safety concerns are satisfied if an applicant commits to filing outage reports and PSAP notifications consistent with the Part 4 rules during their experiments, notwithstanding the applicability of the Commission's outage reporting rules to the IP-based service being provided.

46. *Continued Compliance with CALEA.* We require that providers participating in any experiment involving the provision of service to customers will satisfy the Communications Assistance for Law Enforcement Act (CALEA),⁶⁵ their obligations under Titles 18 and 50, and similar State requirements.

b. Presumptions

47. *Maintain Network Reliability.* We presume that experiments will maintain current levels of network reliability, including the ability to place phone calls and to function during commercial power failures, and maintain security from external attack. The Appendix describes the information that would allow us to either confirm our presumption or conclude that a proposed experiment sufficiently protects public safety values, even if it does not meet existing reliability levels.

48. *Provide Public Alerts.* During developing catastrophic weather conditions, child abductions, or in other emergency situations, public alerts and warnings save lives.⁶⁶ In the case of a national emergency, the President of the United States must be able to communicate with the American people.⁶⁷ We presume that applicants who have elected to provide Wireless Emergency Alerts (WEA)-based alerts over some or all of their current service areas' legacy infrastructure will continue to provide WEA or equivalent alerting capability to the extent that such covered areas are included in transition experiments and will establish appropriate monitoring to ensure that these alerts are effectively received during the course of experimental operations.⁶⁸ We also presume that legacy Emergency Alert System capabilities will be maintained during the course of experiments, to ensure that the public is protected in case of experiment failures.⁶⁹

49. *Address Public Safety Telecommunications Priority Services.* Wireless Priority Service (WPS), Government Emergency Telecommunications Service (GETS), and Telecommunications Service

⁶⁴ See 47 C.F.R. Part 4.

⁶⁵ Pub. L. No. 103-414, 108 Stat. 4279 (1994) (codified as amended in sections of 18 U.S.C. and 47 U.S.C.).

⁶⁶ See, e.g., David Owens & Chole Miller, *National Weather Service Confirms Two Tornadoes Monday*, The Courant (July 2, 2013), http://articles.courant.com/2013-07-02/news/hc-tornado-warning-0702-20130701_1_windsor-locks-dome-national-weather-service-confirms (reporting that twenty nine campers and five counselors were saved when they were evacuated from a sports complex to an adjoining building after the camp director received a WEA tornado warning); Julio Ojeda-Zapata, *Minnesota Cellphone Amber Alert Located Child and was a Nationwide First*, TwinCities.com (Feb. 22, 2013), http://www.twincities.com/ci_22642126/minnesota-cellphone-amber-alert-located-child-and-was (reporting that WEA AMBER Alert issued in Minneapolis was received by a teenager who called 911, leading police to safely recover the abducted child); Rick Wimberly, *Powerful Wireless Emergency Alerts Success Stories at Congressional Hearing*, Emergency Management Blogs (July 22, 2009), <http://www.emergencymgmt.com/emergency-blogs/alerts/Powerful-Wireless-Emergency-Alerts-Success-Stories-at-Congressional-Hearing.html> (stating that the Massachusetts Emergency Management Agency used WEA to alert the public of changes in the shelter in place order as authorities searched for the Boston Marathon bomber).

⁶⁷ Exec. Order No. 13407, *Public Alert and Warning System*, 71 Fed. Reg. 36975 (June 26, 2006).

⁶⁸ See 47 C.F.R. § 10.240.

⁶⁹ See 47 C.F.R. §§ 11.1, 11.2, 11.41, 11.54, 11.56 and 11.61.

Priority (TSP) are at the core of continuity planning and are vital for tactical, emergency response.⁷⁰ WPS and GETS provide priority access/queuing and routing on wireless and wireline networks during periods of congestion. The TSP program provides priority provisioning and emergency restoration of critical circuits used by a restricted set of users performing national security and emergency preparedness functions. We presume applicants will maintain these valuable priority access, routing, provisioning, and restoration programs to support essential national security and emergency preparedness communications. It is important that we understand as to each proposal how these services will be provided, and if there are additional priority communications capabilities that are available in the IP environment to support national security and emergency preparedness.

2. Universal Access

50. Ensuring that all Americans have access to communication services – the value of universal access – is central to our statutory mission. A cornerstone of the Communications Act of 1934 that established the Commission,⁷¹ universal access policies helped to make telephone service ubiquitous throughout the country and accessible by all Americans. The Telecommunications Act of 1996 expanded our universal access mandate to include increased access to both telecommunications and advanced services – such as high-speed Internet – for all consumers at just, reasonable and affordable rates. The Act established principles specifically focused on increasing access to evolving services for consumers living in rural and insular areas and for consumers with low incomes.

51. As networks transition, we must protect and promote universal access. The transitions hold tremendous promise for enhancing universal access, and we seek through these experiments to learn how best to accelerate the delivery of these benefits to all Americans.⁷² We summarize below the universal access conditions, presumptions, and relevant factors for service-based experiments. In each case, we provide additional guidance for applicants in the Appendix.

a. Conditions

52. *Ensuring Access for Persons with Disabilities.* No experiment should jeopardize access to communications for persons with disabilities, including those living on Tribal lands. Ensuring that people with disabilities continue to have access to evolving technologies is a key component of universal access and a core value of the Act.⁷³ We will, accordingly, be able to approve an application only if we are convinced that the proposed experiments consider accessibility issues, including by complying with disability accessibility requirements mandated by statutes and Commission rules.⁷⁴

⁷⁰ At present, TSP is mandatory for all carriers. WPS is voluntary, but participating carriers follow Commission rules. GETS is also voluntary. Carriers are under contract with DHS to provide WPS and GETS. *See* 47 C.F.R. Part 64, Appx. A, B; *see also National Security Emergency Preparedness Telecommunications Service Priority System*, WT Docket No. 96-86, Report and Order, 3 FCC Rcd 6650 (1988); *The Development of Operational, Technical and Spectrum Requirements For Meeting Federal, State and Local Public Safety Agency Communication Requirements Through the Year 2010 and Establishment of Rules and Requirements For Priority Access Service*, WT Docket No. 96-86, Second Report and Order, 15 FCC Rcd 16720 (2000) (Priority Access Service is now called Wireless Priority Service) (*WPS Report and Order*).

⁷¹ 47 U.S.C. § 151.

⁷² *See, e.g.*, Letter from Matthew Wood, Policy Director, Free Press, to Marlene H. Dortch, Secretary, Federal Communications Commission, GN Docket Nos. 12-353 and 13-5, at 2 (filed Jan. 23, 2014) (“No matter the technology used, the Commission is charged with making the network work for everyone.”).

⁷³ *See, e.g.*, 47 U.S.C. §§ 225, 610, 617-19.

⁷⁴ AT&T acknowledges that ensuring disability access “not only is the right thing to do but also [is] mandated by Sections 255 and 716 of the Communications Act, and the Commission implementing rules.” AT&T July 8, 2013 Comments, GN Docket No. 13-5, at 31; *see also, e.g.*, Public Knowledge Comments, GN Docket No. 12-353, at 5 (asserting that the principle of universal service to all Americans applies regardless of location, income, or

(continued....)

53. Technological advances offer the potential for increased access by all persons, and we solicit experiments that test the breadth of this access as well as identify any vulnerabilities. We also recognize that new technologies have the potential for negative impacts.⁷⁵ Therefore, we must be able to determine that proposals have met the needs of persons with disabilities. In designing experiments, providers should pay particular attention to access to 911 services by individuals with disabilities; the provision of Telecommunications Relay Services (TRS); the transmission of remote closed captions; and the development and use of and compatibility with assistive technologies.

54. *Protect Specific Populations.* We require that service-based experiments protect the interests of any specific populations that are potentially at risk, including ensuring that no consumer loses access to service or critical functionalities as a result of the experiment. We have a statutory responsibility to help advance network-based communications for *all* the people of the United States.⁷⁶ We therefore must consider the impact of these experiments on specific populations, such as the elderly, individuals with limited English proficiency (LEP), low-income populations, residents of Tribal lands,⁷⁷ and others who likely will be affected by changes in communications technology in ways different from the general population.⁷⁸ As the Leadership Conference on Civil and Human Rights has emphasized, the Commission must ensure that all consumers and, in particular, underserved communities will continue to have access to reliable service and consumer protections during and after the technology transitions.⁷⁹

(Continued from previous page)_____

disability); NASUCA Reply, GN Docket No. 12-353, at 14-15. Proposals should explain, for example, how the experiment will comply with the Twenty-First Century Communications and Video Accessibility Act of 2010 (CVAA). See TDI Comments, GN Docket No. 12-353, at 3.

⁷⁵ See, e.g., Letter from Gunnar Hellstrom, Senior Advisor, RERC Telecommunications Access, to Marlene H. Dortch, Secretary, Federal Communications Commission, GN Docket Nos. 12-353 and 13-5, at 2 (filed Jan. 23, 2014) (noting high incidence of errors when using TTY for real-time text and voice communication on an IP network rather than over the PSTN and the current lack of an alternative).

⁷⁶ 47 U.S.C. § 151 (tasking the Commission “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”).

⁷⁷ Throughout this document, “Tribal lands” include any federally recognized Indian Tribe’s reservation, pueblo or colony, including former reservations in Oklahoma, Alaska Native regions established pursuant to the Alaska Native Claims Settlement Act (85 Stat. 688), and Indian Allotments, see 47 C.F.R. § 54.400(e), as well as Hawaiian Home Lands – areas held in trust for native Hawaiians by the State of Hawaii, pursuant to the Hawaiian Home Commission Act, 1920, Act July 9, 1921, 42 Stat. 108, *et seq.*, as amended. See *USF/ICC Transformation Order*, 26 FCC Rcd at 17711, para. 126 n.197; *Lifeline and Link Up Reform and Modernization; Lifeline and Link Up; Federal-State Joint Board on Universal Service; Advancing Broadband Availability Through Digital Literacy Training*, WC Docket Nos. 11-42, 03-109, 12-23, CC Docket No. 96-45, Report and Order and Further Notice of Proposed Rulemaking, 27 FCC Rcd 6656, para. 4 n.4 (2012) (*Lifeline Modernization Order*).

⁷⁸ See AAAJ Comments, GN Docket No. 13-5, at 2; Free Press Reply, GN Docket No. 12-353, at 17; New Jersey Division of Rate Counsel Comments, GN Docket No. 13-5, at 21-26; National Urban League and National Action Network Comments, GN Docket No. 12-353, at 2; Rural Broadband Policy Group Comments, GN Docket No. 12-353, at 6-7; Letter from Marti T. Doneghy, Sr. Legislative Representative, Government Affairs, AARP, to Marlene Dortch, Secretary, Federal Communications Commission, GN Docket Nos. 13-5, 12-353, at 1 (filed Dec. 18, 2013); Letter from Cheryl A. Leanza, Leadership Conference on Civil and Human Rights, to Marlene H. Dortch, Secretary, Federal Communications Commission, GN Docket Nos. 12-353 and 13-5, at 1 (filed Jan. 23, 2014) (Leadership Conference Jan. 23 *Ex Parte* Letter).

⁷⁹ Letter from Cheryl A. Leanza, Leadership Conference on Civil and Human Rights, to Marlene H. Dortch, Secretary, Federal Communications Commission, GN Docket No. 13-5, at 1-2 (filed Dec. 5, 2013).

b. Presumptions

55. *Maintain Universal Service Status Quo.* We do not intend for the experiments to deviate from any existing universal service rules and policies.⁸⁰ The Act directs the Commission to ensure universal access to quality services, including advanced telecommunications and information services, at just, reasonable, and affordable rates in all regions of the country.⁸¹ We therefore adopt a rebuttable presumption that applicants will continue to be subject to all existing universal service rules and policies regarding both support and contribution obligations.⁸²

56. *No Reduction in Broadband Access.* We presume that any applicants in any experiment that we would authorize would continue to provide the same or better levels of Internet access regardless of the technology used.⁸³ Congress has tasked the Commission with encouraging the deployment of broadband on a reasonable and timely basis to all Americans.⁸⁴ As stated in the *USF/ICC Transformation Order*, “[a]ll Americans should have access to broadband that is capable of enabling the kinds of key applications that drive our efforts to achieve universal broadband, including education (e.g., distance/online learning), health care (e.g., remote health monitoring) and person-to-person communications (e.g., VoIP or online video chat with loved ones serving overseas).”⁸⁵ While technology transitions usually involve trade-offs, we do not believe reducing broadband access should be among the acceptable costs of network modernization.

57. *No Reduction in Overall Quality of Service.* We presume that service offerings based on new technology will offer equivalent or better quality to comparable legacy-based services. By quality of service, we include attributes of a service that would be directly quantifiable by a customer as well as performance objectives such as a blocking or failure rates that might be set by the service provider.

3. Competition

58. Competition is a core value of the Act and the goal of many of the Commission’s statutory responsibilities. The Commission has a number of regulatory safeguards designed to ensure competition.⁸⁶ Incumbent LECs, for example, generally are subject to dominant carrier rules in their provision of interstate access services, which includes special access. And all common carriers must provide service upon a reasonable request, under terms and conditions that are just and reasonable.⁸⁷

⁸⁰ See generally 47 U.S.C. §§ 214, 254; 47 C.F.R. Part 36, Subpart F; 47 C.F.R. Part 54.

⁸¹ See 47 U.S.C. § 254(b).

⁸² To the extent the Commission modifies or eliminates universal service rules in any of its pending universal service dockets, applicants’ obligations would change accordingly.

⁸³ This would include, but not be limited to, Internet access customers that are supported through either the schools and libraries or the rural health care mechanisms.

⁸⁴ 47 U.S.C. § 1302(a)-(b).

⁸⁵ See *Connect America Fund; A National Broadband Plan for Our Future; Establishing Just and Reasonable Rates for Local Exchange Carriers; High-Cost Universal Service Support; Developing an Unified Intercarrier Compensation Regime; Federal-State Joint Board on Universal Service; Lifeline and Link-Up; Universal Service Reform – Mobility Fund*, WC Docket Nos. 10-90, 07-135, 05-337, 03-109, GN Docket No. 09-51, CC Docket Nos. 01-92, 96-45, WT Docket No. 10-208, Report and Order and Further Notice of Proposed Rulemaking, 26 FCC Rcd 17663, 17695, para. 87 (2011) (*USF/ICC Transformation Order*), *pets. for review pending sub nom. In re FCC 11-161*, No. 11-9900 (10th Cir. filed Dec. 8, 2011).

⁸⁶ See 47 U.S.C. §§ 203, 251; 47 C.F.R. §§ 61.38, 61.41.

⁸⁷ See 47 U.S.C. §§ 201, 202(a).

Much of the competition for enterprise customers today can be traced to these requirements. As stated above, we are not resolving legal or policy questions within the service-based experiments.⁸⁸

a. Conditions

59. *Maintain Wholesale Access.* Competitive LECs often serve customers by relying significantly on incumbent LECs' last-mile networks, including by leasing a variety of copper-based UNEs and TDM-based DS1 and DS3 special access services.⁸⁹ Indeed, competitive LECs claim that copper loops remain essential to provide advanced IP broadband services, such as Ethernet over Copper (EoC), to medium- and small-size businesses.⁹⁰ Consistent with requirements stated above, experiments must be initiated in a manner that, to the extent that wholesale customers are involved, invites such customers to participate voluntarily. After successful initiation of an experiment, the Commission is prepared to consider additional requests to implement a phase of an experiment that authorizes the withdrawal of existing services to wholesale customers.⁹¹ We note that the Commission may authorize experiments in the future involving traditional wholesale access inputs to proceed in stages, with appropriate approvals at each stage, to ensure that comparable services are available during the experiment at equivalent prices, terms, and conditions. We further expect that any proposal of an ongoing experiment of this kind would, in addition, offer to replace wholesale inputs with services that offer substantially similar wholesale access to the applicant's network.

60. Service experiments present a valuable opportunity to identify operational issues posed by technology transitions and their impacts on customers, including any operational challenges arising between applicants and their wholesale customers and competitors.⁹² We reiterate that we are not

⁸⁸ See *supra* para. 25.

⁸⁹ See *Special Access for Price Cap Local Exchange Carriers; AT&T Corporation Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services*, WC Docket No. 05-25, Report and Order, 27 FCC Rcd 10557, 10559, para. 2 (2012) ("Four of the largest incumbent LECs recently reported that their combined 2010 revenues from sales of DS1s and DS3s exceeded \$12 billion."); Randolph C. Nicklas, CTO & SVP Engineering, XO Commc'ns, Statements at Technology Transitions Policy Task Force Workshop 259-60 (Mar. 18, 2013) (noting that the TDM network continues to be quite important), http://transition.fcc.gov/technologies_transitions_policy_task_force/transcript-03182013.pdf; see also Letter from Thomas Jones, Counsel for Cbeyond et al., to Marlene H. Dortch, Secretary, Federal Communications Commission, WC Docket No. 05-25, at 2 (filed Nov. 20, 2013) ("Competitors often have no choice but to purchase DS1 and DS3 special access from ILECs.") (Cbeyond et al. Nov. 20 *Ex Parte* Letter).

⁹⁰ See Letter from Tamar E. Finn, Counsel for U.S. TelePacific Corp. d/b/a TelePacific Commc'ns, to Marlene H. Dortch, Secretary, Federal Communications Commission, GN Docket No. 12-353, Att. at 2-14 (filed Feb. 15, 2013) ("EoC offers 3-50 Mbps capacity and leverages existing copper, allowing expansion of capacity by deploying network gear rather than major capital construction projects. EoC avoids the time and expense of digging up streets to deploy fiber. Average price of \$550 for 10 Mbps EoC, compared to \$350 for T1 (1.54 Mbps) or \$3000 for DS-3 (45 Mbps)"). XO and Broadview assert that EoC services have matured over the past decade and have become a lynchpin for broadband customers where fiber is not available. XO and Broadview Comments, GN Docket No. 12-353, at 5, 7 (claiming that "by some estimates, approximately two-thirds of commercial buildings in the United States are without fiber"); see also CALTEL Comments, GN Docket No. 12-353, at 3-4 (stating that EoC provides California business customers with "reasonably priced copper-based services that provide broadband speeds that only a few years ago were available only over fiber"); TelePacific Comments, GN Docket No. 12-353, at 9-10.

⁹¹ Consistent with requirements stated above, see *supra* para. 32, no experiment can be initiated in a manner that requires existing wholesale customers to be forced to participate; to stop providing legacy services to existing wholesale customers requires approval under section 214.

⁹² See AT&T Reply, GN Docket No. 12-353, at 10 ("If conducting these trials causes operational difficulties for existing ILEC-CLEC arrangements in the affected wire centers, that is a reason to hold these geographically limited trials as soon as possible, not a reason to delay them. The alternative is to remain blind to all these challenges until the final stages of the TDM-to-IP transition are underway nationwide.").

deciding legal or policy issues within the service-based experiments, but will use the data generated through the experiments to inform our decisions.⁹³

61. *Maintain Status Quo in Interconnection.* Service-based experiments must maintain the status quo in providing interconnection arrangements to both existing and new customers. In its Petition, AT&T suggests that once it converts a wire center from legacy circuit-switched telephony to VoIP as part of an experiment, the Commission should preclude other carriers from demanding “service or interconnection in TDM format in those wire centers.”⁹⁴ AT&T also claims that existing interconnection arrangements would remain unaffected by the experiment.⁹⁵ Commenters offer diverse and sometimes contradictory responses to AT&T’s proposal.⁹⁶ We agree with commenters asserting that we can conduct experiments without first resolving legal issues around interconnection.⁹⁷ We address today only what interconnection criteria apply for purposes of service-based experiments.

⁹³ See AT&T Reply, GN Docket No. 12-353, at 9-10 (asserting that, subject to the Commission’s copper retirement rules, competitive LECs would retain the ability to attach their own electronics to unbundled copper loops and subloops in experiment, and to purchase the incumbent LEC’s Ethernet and other packetized telecommunications services, even if TDM services are not available); see also Letter from Maggie McCready, Vice President Federal Regulatory, Verizon, to Marlene H. Dortch, Secretary, Federal Communications Commission, GN Docket 13-5, at 1 (filed Dec. 19, 2013) (stating that as “the costs and challenges of keeping these older facilities continue to rise, the time is approaching when it will make sense to retire duplicative facilities where the more advanced fiber is available”) (Verizon Dec. 19 *Ex Parte* Letter). But see, e.g., Letter from Karen Reidy, COMPTTEL, to Marlene H. Dortch, Secretary, Federal Communications Commission, GN Docket Nos. 12-353, 13-5, at 1-2 (filed Feb. 25, 2013) (“[I]f copper facilities were to be broadly retired – with no functionally and similarly priced alternative wholesale product available – the cost of providing broadband services to these small and medium size business customers could increase dramatically (could increase by 10 to 40 times).”); see also Cbeyond et al. Nov. 20 *Ex Parte* Letter at 2 (arguing that end-user customers sometimes prefer legacy services and that AT&T’s Ethernet prices preclude it as a viable alternative in many cases).

⁹⁴ See AT&T Petition at 21. Incumbent LECs are subject to interconnection requirements, including under section 251 of the Act. See 47 U.S.C. § 251(c)(1). These obligations were designed to “foster competition” in the local telecommunications markets and include the obligation to “negotiate in good faith the terms and conditions of agreements in accordance with Section 252.” See *Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*, CC Docket No. 96-98, First Report and Order, 11 FCC Rcd 15499, 15506, para. 4 (1996).

⁹⁵ See AT&T Reply, GN Docket No. 12-353, at 13-18.

⁹⁶ See, e.g., Cox Reply, GN Docket No. 12-353, at 3-6 (“The gradual transition without mandates will work only if incumbent LECs continue to be subject to interconnection obligations for any form of interconnection they provide. . . . While incumbent LECs will resist this obligation, as Sprint explains, they retain considerable market power because they still control access to most customers.”); NCTA Comments, GN Docket No. 12-353, at 10-11 (explaining that “the Commission must take steps during this trial to ensure this network upgrade is not used by the incumbent LEC as a pretext for anticompetitive behavior”); Letter from Angie Kronenberg, COMPTTEL, to Marlene H. Dortch, Secretary, Federal Communications Commission, GN Docket Nos. 13-5 and 12-353, WC Docket No. 05-25, at 1-2 (filed Jan. 22, 2014). But see, e.g., Verizon Comments, GN Docket No. 12-353, at 36-40 (“The market-based transition to IP interconnection for voice is already starting to occur, in a manner consistent with the Commission’s longstanding hands-off policy towards regulating interconnection of Internet networks. Carriers today have an obligation to accept IP-originated traffic, and that obligation is not at issue in the interconnection debate.”); see also Verizon Dec. 19 *Ex Parte* Letter at 2; Letter from Maggie McCready, Vice President Federal Regulatory, Verizon, to Marlene H. Dortch, Secretary, Federal Communications Commission, GN Docket 13-5, at 1 (filed Jan. 10, 2014) (describing the status of Verizon’s negotiation of VoIP interconnection agreements).

⁹⁷ See AT&T Reply, GN Docket No. 12-353, at 4 (“[H]olding the trials will not require the Commission to make any prior determinations about the proper role of regulation, if any, for interconnection among providers of IP-based services, including VoIP.”); Cablevision Comments, GN Docket No. 13-5, at 2-6; see also Letter from J.G. Harrington, Counsel to Cox Commc’ns, Inc., to Marlene H. Dortch, Secretary, Federal Communications Commission, GN Docket Nos. 13-5 and 12-353, Attach. at 1-2 (filed Dec. 23, 2013).

62. Interconnection benefits customers directly and drives telecommunications competition, and we continue to stress its importance.⁹⁸ Accordingly, a proposed experiment may not result in the cessation or impairment of service for providers, or for the end-user customers of such providers, that are interconnected in an experiment arena (e.g., a wire center). Additionally, we must be able to evaluate whether customers in experiment arenas will be able to select their own interexchange carrier (IXC) and how IXCs will terminate interstate interexchange or international calls to customers participating in the experiment.⁹⁹ Further guidance about these issues is raised in the Appendix.¹⁰⁰

b. Presumptions

63. *Maintain Intercarrier Compensation.* For purposes of the experiments, we presume that applicants will maintain the intercarrier compensation (ICC) status quo ante in their experimental arenas in accordance with the Commission's *USF/ICC Transformation Order*, which addresses ICC revenue flows, including the ICC applicable to VoIP-PSTN traffic and related subsidies.¹⁰¹ For example, to the extent that it already applies, we expect that the ongoing ICC rate transition and ICC recovery mechanism will continue in participating wire centers, and that traffic, including VoIP traffic, originating from and terminating to participating wire centers will be subject to the same ICC rights and obligations that applied to such traffic immediately before the experiment. Additional guidance on how we will evaluate experiments with respect to ICC is included in the Appendix.

c. Relevant Factors

64. As AT&T notes in its Petition, the ICC system is undergoing comprehensive reform, including a rate transition that likely applies to traffic in arenas where experiments will be conducted.¹⁰² Several parties commented on ICC issues, asking us to address whether or how the ICC obligations apply in an all-IP environment.¹⁰³ We need not address these issues before proceeding with the experiments. However, given the importance of the ongoing ICC reform as a means to achieving the Commission's goal of facilitating a transition to all-IP networks, in the Appendix, we invite applicants to address several ICC issues related to the experiments.¹⁰⁴

4. Consumer Protection

65. New communications technologies present myriad opportunities for service enhancements, including consumer protections that do not exist, and perhaps are not even envisioned, today. We encourage development of those enhancements and address below the criteria – all of which are mandatory conditions – to ensure that all experiments preserve consumer protection values.

66. *Protect Customer Privacy.* Service-based experiments must comply with existing requirements to protect customer privacy.¹⁰⁵ Applicants must ensure that their proposed experiments

⁹⁸ See, e.g., *supra* note 15 (stating that, due to lack of interconnection, subscribers of competing telephone systems in the same community could not speak to each other on the telephone unless at least one of the subscribers purchased telephone service from both companies).

⁹⁹ See 47 U.S.C. § 251(g).

¹⁰⁰ See *infra* Appx. B, at para. 39.

¹⁰¹ *USF/ICC Transformation Order*, 26 FCC Rcd at 18002-28, paras. 933-71.

¹⁰² See AT&T Petition at 2 (citing *Connect America Fund*, WC Docket No. 10-90).

¹⁰³ See Blooston Rural Carriers Reply, GN Docket No. 12-353, at 10-11; Cox Comments, GN Docket No. 12-353, at 15; Ind. URC Comments, GN Docket No. 12-353, at 4; NTCA Petition at 13.

¹⁰⁴ See *infra* Appx. B, at paras. 37-38.

¹⁰⁵ 47 U.S.C. §§ 222, 338(i), 551; 47 C.F.R. §§ 64.2001-2011.

maintain network users' reasonable expectations of privacy, regardless of the technology used.¹⁰⁶ As discussed further in the Appendix, in evaluating a proposal, we must be able to consider the privacy implications of a proposed experiment and ensure that experiment proposals comply with existing privacy requirements.

67. *Comply with Truth-in-Billing, Slamming, and Cramming Rules.* Service-based experiments must comply with the truth-in-billing rules, which are intended to address both slamming and cramming,¹⁰⁷ and the Commission's other anti-slamming rules.¹⁰⁸ We welcome States' assistance in preserving and enhancing consumer protections, and agree that "the States have an inherent interest in consumer protection that includes such areas as reliability and quality of service, cramming, and slamming."¹⁰⁹ Moreover, as NASUCA asserts, State and federal enforcement tools are needed to protect consumers from fraudulent, deceptive, abusive, and unfair practices like slamming, cramming, bill shock, and oppressive Early Termination Fees (ETFs).¹¹⁰

68. *Maintain Local Number Portability.* For purposes of proposed service-based experiments, our current number portability rules and policies will continue to apply.¹¹¹ Local number portability (LNP) protects consumer choice and encourages competition by allowing consumers to respond to providers' price and service changes without losing their phone numbers. Given the critical role of number portability in enabling competition and consumer benefits, we do not intend the

¹⁰⁶ CCIA Reply, GN Docket No. 12-353, at ii, 11-12; Precursor Comments, GN Docket No. 12-353, at 2 (stating that consumers deserve to know if their privacy, safety, property or money is protected from real harms regardless of the technology, product, or service involved); Public Knowledge Comments, GN Docket No. 12-353, at 6.

¹⁰⁷ See *Truth-in-Billing and Billing Format*, CC Docket No. 98-170, Order on Reconsideration, 15 FCC Rcd 6023 (2000) (*Truth-in-Billing Order on Reconsideration*); *Truth-in-Billing and Billing Format, National Association of State Utility Consumer Advocates' Petition for Declaratory Ruling Regarding Truth-in-Billing*, CC Docket No. 98-170, Second Report and Order, Declaratory Ruling, and Second Further Notice of Proposed Rulemaking, 20 FCC Rcd 6448 (2005), *vacated in part sub nom. Nat'l Ass'n of State Util. Consumer Advocates v. FCC*, 457 F.3d 1238 (11th Cir. 2006) (invalidating preemption of certain State requirements for CMRS bills).

¹⁰⁸ See, e.g., AARP Comments, GN Docket No. 12-353, at 16; Mass. Dep't Telecomm. & Cable Comments, GN Docket No. 12-353, at 8; Mich. PSC Reply, GN Docket No. 12-353, at 5-6; Nat'l Hispanic Media Coal. Reply, GN Docket No. 12-353, at 4; NASUCA Comments, GN Docket No. 12-353, at 23-24; Public Knowledge Comments, GN Docket No. 12-353, at 6. The truth-in-billing rules are codified at 47 C.F.R. § 64.2400 *et seq.* The anti-slamming rules are codified at 47 C.F.R. § 64.1100 *et seq.*

¹⁰⁹ State Members Comments, GN Docket No. 12-353, at 11-12. These commenters believe that AT&T's proposal would undermine safeguards against anti-consumer practices such as cramming, and other market failures; see also AARP Comments, GN Docket No. 12-353, at 15-16; Mich. PSC Reply, GN Docket No. 12-353, at 5-6.

¹¹⁰ NASUCA Comments, GN Docket No. 12-353, at 23-24.

¹¹¹ See 47 U.S.C. §§ 251(b)(2); 47 C.F.R. Part 52, Subpart C. Some commenters have expressed concern about how LNP will be implicated by the technology transitions and urge us to consider number portability in the experiments. Cox Comments, GN Docket No. 13-5, at 3-4; HyperCube Comments, GN Docket No. 13-5, at 11; Public Knowledge Comments, GN Docket No. 13-5, at 18-19. We believe that such issues are best addressed in the Commission's pending proceeding proposing to allow interconnected VoIP providers to obtain telephone numbers directly from the North American Numbering Plan Administrator (NANPA) and the Pooling Administrator (PA) and expect that the Report released today by the Wireline Competition Bureau will help inform the Commission's decision-making in that proceeding. *Numbering Policies for Modern Communications; IP-Enabled Services; Telephone Number Requirements for IP-Enabled Services Providers; Telephone Number Portability; Developing a Unified Intercarrier Compensation Regime; Connect America Fund; Numbering Resource Optimization; Petition of Vonage Holdings Corp. for Limited Waiver of Section 52.15(f)(2)(i) of the Commission's Rules Regarding Access to Numbering Resources; Petition of TeleCommunications Systems, Inc. and HBF Group, Inc. for Waiver of Part 52 of the Commission's Rules*, WC Docket Nos. 13-97, 04-36, 07-243, 10-90, CC Docket Nos. 95-116, 01-92, Notice of Proposed Rulemaking, Order and Notice of Inquiry, 28 FCC Rcd 5842, 5842, para. 1 (2013).

experiments to put at risk the right of consumers to port their numbers. Additional background and guidance is provided in the Appendix.

69. *Preserve Call Routing Reliability.* Any experiment must ensure that routing and call delivery processes are in place so calls are successfully completed as emphasized in various Commission orders, including the *RCC Order*¹¹² and the *USF/ICC Transformation Order*.¹¹³ Consistent with the goals of these experiments, we encourage providers to test advanced call routing technologies, while ensuring that consumers are able to call everyone they formerly were able to call over their legacy service without call completion failures. The Appendix includes additional guidance on call routing and delivery requirements.

F. Customer Notice Requirements

70. We can only achieve our goal of advancing technology transitions if customers are fully educated and informed. Thus, we will require in any approval of a service-based experiment that all applicants must provide clear, timely, and sufficient notice of any service-based experiment. Ensuring adequate notice to affected consumers and entities is critical to fulfilling our consumer protection responsibilities as well as our responsibilities to protect and promote competition.¹¹⁴ Indeed, the purpose of these experiments is to learn what the redesign of our communications networks means for individuals and businesses.¹¹⁵

71. Based on our experience receiving and analyzing consumer complaints and inquiries, we expect applicants to provide simple, easy-to-use means for consumers to give feedback on experiments. We have found that online complaint forms that are simple to access and complete are often efficient means to obtain feedback and concerns, and provide a ready way to aggregate and analyze consumer experience data. In addition, we expect participants to allow for emailed feedback as well as toll-free phone lines for those without Internet access. Finally, because consumers must know that these feedback

¹¹² *Rural Call Completion*, WC Docket No. 13-39, Report and Order and Further Notice of Proposed Rulemaking, 28 FCC Rcd 16154 (2013) (*RCC Order*) (requiring certain collection and reporting data on how successfully calls are being delivered, especially to rural areas; prohibiting false audible ringing; and seeking comment on additional reforms pertaining to autodialer traffic, intermediate providers, and on other safe harbor options and reporting requirements).

¹¹³ See *USF/ICC Transformation Order*, 26 FCC Rcd at 17890-904, paras. 702-35 (adopting new rules in part to address phantom traffic and re-emphasizing the Commission's longstanding prohibition on call blocking).

¹¹⁴ For example, under Part 63 of its rules, the Commission has adopted specific requirements that ensure that customers of domestic telecommunications services receive adequate notice of a carrier's discontinuance plans and have an opportunity to inform the Commission of any resultant hardships. See 47 C.F.R. §§ 63.60 *et seq.*; see also 47 U.S.C. § 214(a). In particular, before discontinuing service, a telecommunications carrier generally must notify all affected customers of its proposed discontinuances. Notice to customers must include the name and address of the carrier, the date of the planned service discontinuance, the geographic areas where service will be discontinued, and a brief description of the type of service affected. See 47 C.F.R. § 63.71(a). These requirements are intended to inform consumers about when their service may be discontinued and to provide them with an opportunity to object to any proposed discontinuances. See *IP-Enabled Services*, WC Docket No. 04-36, Report and Order, 24 FCC Rcd 6039, 6042-43, para. 6 (2009).

¹¹⁵ See, e.g., Letter from Jeffrey L. Sheldon, Counsel for Int'l Bus. Machs. Corp., to Marlene H. Dortch, Secretary, Federal Communications Commission, WC Docket No. 13-266, at 3-4 (filed Dec. 11, 2013) (arguing that the public convenience and necessity would be adversely affected by premature discontinuance of legacy services, that consumer power is at serious risk without the telecom services CenturyLink provides, and that replacement services will require significantly more than one year to implement); *Application of Qwest Communications Company, LLC d/b/a CenturyLink QCC to Discontinue Domestic Telecommunications Services Not Automatically Granted*, WC Docket No. 13-266, Public Notice, DA 13-2394 (Wireline Comp. Bur. 2013) (CenturyLink 214 application removed from streamlined processing in order to evaluate whether there are reasonable substitutes for the proposed discontinued service and whether the present or future public convenience and necessity will be adversely affected).

opportunities exist, we expect participants to notify consumers about ways to provide feedback in a clear and conspicuous manner, which can include mail, email, and bill inserts.

72. For purposes of the experiments, we presume that current notice requirements shall continue to apply, including notice of discontinuance and notice of network change requirements.¹¹⁶ We further encourage participants to take advantage of this historic opportunity and do more than what is minimally required to educate customers about next generation technology,¹¹⁷ and to fairly present any potential trade-offs that might accompany a technology transition, and clearly describe any differences in the terms, or conditions of any experimental offerings compared to the provider's legacy offerings.¹¹⁸ Doing so will facilitate the creation of a fuller record about the effects of the technology transitions on customers, a key aim of this proceeding. Additional guidance on notice requirements is provided in the Appendix.

G. Data Collection and Submission

73. One measure of the success of an experiment is the quality of the data it produces. The need for quality data regarding the effect on customers of adopting next generation technologies is perhaps greater now than ever before. Communications technologies have a defining role in our economy and culture, and the pace at which these technologies are evolving is staggering. Providers are racing to incorporate next generation technologies into their networks faster than their competitors. It is imperative that expectations and values developed over decades are not compromised in the process. We seek to foster a robust public discussion about these transitions that is fact-based and data-driven – a dialogue that will deepen our understanding of how our nation's values intersect with its communications technologies.¹¹⁹ Accordingly, we intend for these to be “open data” experiments so that data are publicly available, or made available pursuant to protective order against non-disclosure as appropriate.

74. Thus, it will be relevant to our decision whether to approve an experiment which specific data applicants propose to collect during the experiment, including which data they would collect in the ordinary course for their own purposes.¹²⁰ For example, the Commission will find useful experiments that collect and provide to the Commission data on key attributes of IP-based services, such as network capacity, call quality, device interoperability, service to persons with disabilities, system availability, 911 and PSAP service, cybersecurity, call persistence, call functionality, and service coverage.¹²¹ For experiments that affect consumers, we will consider the specific methods and metrics that will be used to measure consumers' experiences during the experiment. To ensure high-quality data, we expect each experiment to include a “control group” by which to evaluate the performance of the “experimental group,”¹²² unless the nature of the experiment would not accommodate a control group.¹²³ We presume

¹¹⁶ See 47 U.S.C. § 214; 47 C.F.R. §§ 51.325-35, 63.63, 63.71. If an applicant believes that the notice requirements are harmful, inapt or otherwise contrary to the public interest, it may request relief and provide supporting justification.

¹¹⁷ By analogy, we refer to the extensive consumer education efforts undertaken as part of the transition from analog to digital television. See 47 C.F.R. §§ 27.20, 54.418, 73.674, 76.1630.

¹¹⁸ See AT&T Reply, GN Docket No. 12-353, at 7-9 (stating that pre-migration notice to their own end-user customers are among the operational issues that experiments will address).

¹¹⁹ See *supra* at para. 8.

¹²⁰ See *infra* at Appx. B, Part V.

¹²¹ See Letter from Harold Feld, Senior Vice President, Public Knowledge, to Marlene H. Dortch, Secretary, Federal Communications Commission, GN Docket Nos. 12-353 and 13-5, at 3 (filed Jan. 13, 2014) (describing attributes for testing identified in CTC Technology & Energy Report: A Brief Assessment of Engineering Issues Related to Trial Testing for IP Transition).

¹²² See *Lifeline and Link Up Reform and Modernization; Lifeline and Link Up; Federal-State Joint Board on Universal Service; Advancing Broadband Availability Through Digital Literacy Training*, WC Docket Nos. 11-42,

(continued....)

that a control group will be within the same geographic area, such as a wire center, as the experimental group. Use of a robust, statistically informative control group will provide the Commission with valuable information when it is presented with likely future applications to discontinue legacy services under section 214. We provide more details on control groups and other data collection activities in the Appendix.

75. Applicants should ensure that the submission of data protects customer privacy consistent with applicable privacy laws and regulations. To the extent information or records a provider collects related to an experiment are subject to laws or regulations related to customer proprietary network information (CPNI), such records should not be submitted if doing so is inconsistent with applicable laws or regulations.¹²⁴ Providers should also consider the applicability of other privacy protections, including the Electronic Communications Privacy Act¹²⁵ as well as the prohibitions related to customer privacy described in 47 U.S.C. § 551. Additional guidance on applicant data collection is provided in the Appendix.

76. *Economic Impact.* In evaluating proposals, we will consider how applicants will measure the economic impact of experiments, such as any changes in telecommunication-related employment and skill mix as well as other effects on local economic opportunities.¹²⁶

H. Legal Authority

77. We find ample legal authority to seek experiments of the type we are soliciting, and to consider under this framework only those proposed experiments that satisfy the various criteria we set forth above. Congress has given the Commission broad authority to conduct inquiries relating to the provisions of the Act. In particular, section 403 of the Act provides, in pertinent part, that “[t]he Commission shall have full authority and power at any time to institute an inquiry, on its own motion, in any case and as to any matter or thing . . . concerning which any question may arise under any of the provisions of this chapter, or relating to the enforcement of any of the provisions of this chapter.”¹²⁷ In addition, to the extent any proposed experiments relate to the wireline to wireless transition, we find

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03-109, 12-23, CC Docket No. 96-45, Report and Order and Further Notice of Proposed Rulemaking, 27 FCC Rcd 6656, 6795, para. 326 (2012) (*Lifeline Reform Order*) (emphasizing the value of control groups). The Commission is open to suggestions about how to select each group; however, *a priori* we favor a transparent process and believe random selection of some type is likely the best choice for mitigating bias and strengthening credibility. For a non-technical discussion of the value of random selection, consult Michael Abramowicz, Ian Ayres, & Yair Listorkin, *Randomizing Law*, 159 U. Pa. L. Rev. 929, 934-38 (2011).

¹²³ We anticipate that the vast majority if not all experiments will be able to accommodate a control group, but we do not want to foreclose a valuable experiment on the basis that it cannot provide data from a control group.

¹²⁴ See 47 U.S.C. § 222; 47 C.F.R. §§ 64.2001-11.

¹²⁵ 18 U.S.C. § 2702(a)(3), (c) (prohibiting any provider of electronic communication service to the public from “knowingly divulg[ing] a record or other information pertaining to a subscriber to or customer of such service . . . to any governmental entity,” subject to certain exceptions). This is not an exhaustive list of statutes and regulations related to subscriber privacy. Each provider must exercise its own due diligence in ensuring its submissions comply with applicable law. Parties are also cautioned that, in circumstances where laws or regulations prohibit release of information to the government, the filing of unredacted versions of the records, even if filed confidentially, may still violate the applicable law.

¹²⁶ See, e.g., Letter from Debbie Goldman, Telecommunications Policy Director, Commc’ns Workers of Am., to Marlene Dortch, Secretary, Federal Communications Commission, GN Docket No. 13-5 (filed Jan. 23, 2014); Leadership Conference Jan. 23 *Ex Parte* Letter at 1.

¹²⁷ See 47 U.S.C. § 403; see also *In re: James A. Kay, Jr.*, WT Docket No. 94-147, Memorandum Opinion and Order, 13 FCC Rcd 16369, 16372, para. 10 (1998) (holding that the Commission has broad discretion whether to institute a section 403 inquiry).

authority to seek proposals for such an experiment in the statute’s mandate to “[s]tudy new uses for radio, provide for experimental uses of frequencies, and generally encourage the larger and more effective use of radio in the public interest.”¹²⁸ This authority has been the source of the Commission’s Part 5 rules for experimental radio service.¹²⁹ Congress also has expressed its intent to encourage technological change through numerous other statutory provisions.¹³⁰ We find that these experiments are likely to accelerate such technological changes.¹³¹ We also find that soliciting these types of experiments under the criteria we have identified is consistent with, and supported by, other statutory provisions governing the Commission.¹³²

78. Pursuant to section 706(a) of the Telecommunications Act of 1996, the Commission “shall encourage the deployment on a reasonable and timely basis of advanced telecommunications

¹²⁸ 47 U.S.C. § 303(g); *see also* *Cellco Partnership v. FCC*, 700 F.3d 534, 541-42 (D.C. Cir. 2012) (stating that Title III affords the Commission “broad authority” to manage spectrum in the public interest and endows the Commission with “expansive powers” and a “comprehensive mandate to ‘encourage the larger and more effective use of radio in the public interest’” (quoting *NBC v. United States*, 319 U.S. 190, 219 (1943))).

¹²⁹ 47 C.F.R. §§ 5.1-5.602; *see also* *Promoting Expanded Opportunities for Radio Experimentation and Market Trials Under Part 5 of the Commission’s Rules and Streamlining Other Related Rules 2006 Biennial Review of Telecommunications Regulations – Part 2 Administered by the Office of Engineering and Technology (OET)*, ET Docket Nos. 10-236, 06-155, Report and Order, 28 FCC Rcd 758, 819, 874, para. 168, Stmt. of Comm’r Ajit Pai (2013) (“In the communications context, the experimental spirit is reflected in laws and regulations. Section 303(g) of the Communications Act of 1934, for instance, directs us to ‘[s]tudy new uses for radio, provide for experimental uses of frequencies, and generally encourage the larger and more effective use of radio in the public interest.’ Our longstanding Experimental Radio Service rules fulfill this mandate.”).

¹³⁰ *See, e.g.*, 47 U.S.C. § 157(a) (“It shall be the policy of the United States to encourage the provision of new technologies and services to the public. Any person or party (other than the Commission) who opposes a new technology or service proposed to be permitted under this chapter shall have the burden to demonstrate that such proposal is inconsistent with the public interest.”); *id.* § 230(b)(1) (announcing that “[i]t is the policy of the United States . . . to promote the continued development of the Internet and other interactive computer services and other interactive media”); *id.* § 257 (mandating ongoing review to identify and eliminate “market entry barriers for entrepreneurs and other small businesses in the provision and ownership of telecommunications services and information services, or in the provision of parts or services to providers of telecommunications services and information services,” with the goal of promoting “the policies and purposes of this [Communications] Act favoring a diversity of media voices, vigorous economic competition, technological advancement, and promotion of the public interest, convenience, and necessity”); *see also* American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5, 123 Stat. 115 (requiring the Commission to develop a National Broadband Plan with the goal of promoting, among other things, “private sector investment, entrepreneurial activity, job creation and economic growth”).

¹³¹ *See supra* para. 8.

¹³² *See, e.g.*, 47 U.S.C. § 151 (instituting the FCC for, among other objectives, “the purpose of regulating interstate and foreign commerce in communication by wire and radio 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”); *see also* 47 U.S.C. § 201(b) (granting the Commission authority to “prescribe such rules and regulations as may be necessary in the public interest to carry out the provisions of this [Act]”). As explained above, we may authorize experiments we deem, on balance, to be in the public interest (where any other applicable legal prerequisites are met) and may, as relevant, condition our approval of those experiments on compliance with various criteria that relate to our statutory responsibilities, including for example, ensuring interconnection under sections 251(a) and (c), 47 U.S.C. § 251(a), (c)(2), authorizing proposed extensions of lines and discontinuances of service, 47 U.S.C. § 214(a), requiring carriers to provide themselves with adequate facilities, 47 U.S.C. § 214(d), ensuring adequate notice of network changes, 47 U.S.C. § 251(c)(5), ensuring compliance with numbering obligations, 47 U.S.C. § 251(e), and ensuring just and reasonable charges and practices, 47 U.S.C. § 201(b).

capability to all Americans.”¹³³ Further, the Commission has found that deployment of broadband (i.e., advanced telecommunications capability)¹³⁴ to all Americans has not been reasonable and timely.¹³⁵ We further observed in the *2011 Seventh Broadband Progress Report* that “too many Americans remain unable to fully participate in our economy and society because they lack broadband.”¹³⁶ This finding triggers our duty under section 706(b) to “remov[e] barriers to infrastructure investment” and “promot[e] competition in the telecommunications market” in order to accelerate broadband deployment throughout the Nation.¹³⁷ As mentioned above, we find that soliciting the type of experiments described in this Order will accelerate broadband deployment and therefore advances the goals of section 706.¹³⁸

79. We recognize that applicants might need particularized waivers of or forbearance from specific rules or statutory requirements. As noted above, the Commission’s existing standards and procedures apply to such requests.¹³⁹ We reiterate that no experiment that involves removing, reducing, or impairing a legacy service in favor of an experimental service may proceed under the framework of this Order unless the provider files for and we grant such discontinuance authority as may be required by section 214 of the Act. Any such grant of section 214 authority would be temporary and for the limited purpose of conducting the experiment. As a consequence of its temporary nature, a grant of section 214

¹³³ 47 U.S.C. § 1302(a). Section 706 of the Telecommunications Act of 1996, Pub. L. No. 104-104, § 706, 110 Stat. 56, 153 (1996), as amended by the Broadband Data Improvement Act, Pub. L. No. 110-385, 122 Stat. 4096 (2008), is now codified in Title 47, Chapter 12 of the United States Code. See 47 U.S.C. § 1301 *et seq.*

¹³⁴ Congress adopted a definition of “advanced telecommunications capability” that is not confined to a particular technology or regulatory classification. Rather, “‘advanced telecommunications capability’ is defined, without regard to any transmission media or technology, as high-speed, switched, broadband telecommunications capability that enables users to originate and receive high-quality voice, data, graphics, and video communications using any technology.” 47 U.S.C. § 1302(d)(1); see also *National Broadband Plan for our Future*, Notice of Inquiry, 24 FCC Rcd 4342, 4390-91, Appx. B, para. 13 (2009) (*National Broadband Plan*) (stating that “advanced telecommunications capability” includes broadband Internet access); *Inquiry Concerning the Deployment of Advanced Telecomms. Capability to All Americans in a Reasonable and Timely Fashion*, CC Docket No. 98-146, Report, 14 FCC Rcd 2398, 2400, para. 1 (1999) (section 706 addresses “the deployment of broadband capability”). The Commission has observed that the phrase “advanced telecommunications capability” in section 706 is similar to the term “advanced telecommunications and information services” in section 254. See *Rural Health Care Support Mechanism*, WC Docket No. 02-60, Order, 21 FCC Rcd 11111, 11113 n.9 (2006).

¹³⁵ See *Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, Amended by the Broadband Data Improvement Act*, GN Docket No. 11-121, Eighth Broadband Progress Report, 27 FCC Rcd 10342, 10344, para. 1 (2012) (*Eighth Broadband Progress Report*); *Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act*, GN Docket No. 10-159, Seventh Broadband Progress Report and Order on Reconsideration, 26 FCC Rcd 8008, 8009, para. 1 (2011) (*2011 Seventh Broadband Progress Report*); *Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act; A National Broadband Plan for Our Future*, GN Docket Nos. 09-137, 09-51, Sixth Broadband Deployment Report, 25 FCC Rcd 9556, 9558, para. 2 (2010) (*2010 Sixth Broadband Deployment Report*).

¹³⁶ *2011 Seventh Broadband Progress Report*, 26 FCC Rcd at 8011, para. 4.

¹³⁷ 47 U.S.C. § 1302(b).

¹³⁸ See, e.g., *Availability of Advanced Telecommunications Capability in the United States*, GN Docket No. 04-54, Fourth Report to Congress, 19 FCC Rcd 20540, 20578 (2004) (“[S]ubscribership to broadband services will increase in the future as new applications that require broadband access, such as VoIP, are introduced into the marketplace, and consumers become more aware of such applications.”) (emphasis added).

¹³⁹ See *supra* para. 37; see also 47 C.F.R. §§ 1.3, 1.44, 1.53.

authority does not extend past the experiment, and at the end of the experiment providers must offer and customers may choose to subscribe to the service that had been temporarily discontinued unless, of course, a permanent section 214 approval had been granted. As explained in the Appendix, we direct each applicant to address what additional legal authority, relief, or action by the Commission or others would be required to conduct the proposed experiment.¹⁴⁰

I. Process for Submitting Experiment Proposals

1. Timeline

80. We wish to begin the experiments as soon as possible. The technology transitions are well underway and will continue during the experiments described above. Network providers will continue to upgrade their facilities and services, and the Commission will continue to move forward to address the difficult legal and policy questions surrounding these transitions. To increase the possibility that any evidence generated by these experiments benefits the Commission, network providers, and the public in advancing these parallel processes, we establish a speedy timeframe for the solicitation and consideration of proposed experiments. The following deadlines shall apply to the first round of experiments:

- Experiment proposals due Thursday, February 20, 2014¹⁴¹
- Public Notice seeking comment on submitted proposals shortly after the proposals are filed
- Comments due Friday, March 21, 2014
- Replies due Monday, March 31, 2014
- Commission decision within approximately 60 days of the reply comment deadline.

Below we provide specific instructions for filing proposals for experiments.¹⁴²

2. Experiment Proposals Submitted Outside the Timeframe Above

81. We recognize that some providers may be interested in conducting an experiment but are unable to satisfy the timeframes set forth above. Our goal is to encourage any useful experiments consistent with the enduring values set forth by Congress. We therefore encourage additional proposals that are submitted outside the timeframes above. As explained throughout this Order, our objective is to enhance and accelerate the technology transitions through the use of and learning from service-based experiments.¹⁴³ Prompt resolution of future proposals will achieve these objectives. Nevertheless, we also recognize that the framework we establish today does not need to exist in perpetuity. As such, barring further Commission action, we will not consider additional experiments after 1 year from the date of the Commission's action on the initial set of approvals. We will, of course, continue to monitor ongoing experiments.

IV. EXPERIMENTS AND RESEARCH TARGETED TO NETWORK VALUES

82. The service-based experiments described above will examine the impacts on consumer values when providers substitute a new technology or service for a legacy one, with an eye toward discontinuing the legacy service in the post-transition world. But that is just one type of experiment. We

¹⁴⁰ See *infra* at Appx. B, para. 7.

¹⁴¹ We also welcome on this date, or anytime thereafter, expressions of interest from entities that wish to sponsor service-based experiments. We will work with any such entities, at their request, to help formulate and develop proposals for service-based experiments.

¹⁴² See *infra* 232-233.

¹⁴³ See, e.g., paras. 8, 25, 51.

also can – and should – learn from more targeted experiments and commissioned research that study and elicit data on impacts to our core values in different ways. In the *Technology Transitions PN*, the Task Force sought comment on a number of targeted experiments to examine particular aspects of the technology transitions.¹⁴⁴ Such targeted experiments and cooperative research efforts allow us to focus on particular classes of users that may not have access to advanced services and/or develop proof of concept tests of new network services to learn more about how we can protect and enhance the enduring values embodied in the statute. As with the service-based experiments, the targeted experiments and commissioned research described below will provide critical information on how the technology transitions affect consumers in different contexts with respect to these values. This information will help guide the Commission as it makes legal and policy choices that will speed the technology transitions while ensuring consumers are protected.

83. We adopt one targeted experiment and two cooperative research and development initiatives today. First, we adopt an experiment in which we will solicit proposals to bring advanced services to rural Americans, including residents of Tribal lands, with support from the Connect America Fund, which will allow the Commission to examine different approaches to ensuring universal access to these advanced services in an all-IP world. Second, building on the MOU with the National Institute on Aging announced in December 2013, we take the next step in our efforts to commission research on how the technology transitions impact persons with disabilities by establishing a budget and setting forth a process for soliciting an initial set of research proposals. Third, we authorize the creation of a numbering testbed, separate from legacy databases and systems, to spur the research and development of the next generation standards and protocols for number allocation, verification, and call routing. The testbed will allow the Commission to examine approaches to preserving and enhancing the network values inherent in our existing numbering systems in an all-IP world.

84. These targeted experiments and research efforts take diverse forms, but they will be guided by basic principles. As with the service-based experiments, they are not intended to resolve legal or policy questions arising from the transition. Rather, they are intended to help the Commission gather a factual record of information to inform such decisions. As we pursue these initiatives, the Commission will work collaboratively with other governmental and non-governmental entities to leverage expertise and experience where appropriate. And our processes will be transparent, open, and responsive. They will allow for broad public input from all interested parties and yield data and information that will be publicly available, subject to appropriate privacy protections.

85. These efforts are not exhaustive. We welcome ideas from other interested parties on ways the Commission can engage in targeted experiments and cooperative research to learn about and anticipate the impacts of transitioning technologies.

A. Next Generation Network Experiments in Rural America (Report and Order in WC Docket No. 10-90)

86. Preserving universal access to communications during these historic technology transitions is one of our core values. In the last several years, the Commission has undertaken major reforms to each of its universal service programs to modernize those programs in light of marketplace changes and technological advancements.¹⁴⁵

¹⁴⁴ *Technology Transitions PN*, 27 FCC Rcd 6346.

¹⁴⁵ In the *USF/ICC Transformation Order*, the Commission adopted comprehensive reforms to modernize the existing high-cost program and accelerate the transition from circuit-switched to IP networks. *USF/ICC Transformation Order*, 26 FCC Rcd at 17669-70, paras. 6-10. In 2012, the Commission adopted a broadband pilot program to determine whether and how the Lifeline program could be modified to promote the adoption and retention of broadband services by low-income households. *Lifeline Reform Order*, 27 FCC Rcd at 6794-6807, paras. 321-54. In 2012, the Commission recognized that access to high quality, secure and high-bandwidth connectivity is critical to the delivery of health care and disaster preparedness. *Rural Healthcare Support*

(continued....)

87. We recognize that such reforms, along with ongoing efforts of existing providers in rural, high-cost areas, have already resulted in the deployment of new technologies and IP-based networks in some areas,¹⁴⁶ and we expect technology transitions will continue to occur organically. At the same time, consistent with the statutory principles set forth in section 254 of the Act, it is critical that we take steps to ensure that all Americans benefit from the technology transitions, and that we gain data on the impact of technology transitions in rural areas, including Tribal lands, where residential consumers, small businesses and anchor institutions, including schools, libraries and health care providers, may not have access to advanced broadband services.¹⁴⁷ As networks transition, we need to make sure that rural Americans are not left behind.

88. We recognize that rural America poses particular challenges for the deployment of next generation communications services. By definition, rural areas are geographically dispersed, with lower population density. Often they are in areas with geological and topographical challenges; in addition, some rural areas experience particularly extreme seasonal and meteorological conditions. For various reasons, rural areas have lower broadband adoption rates than urban areas.¹⁴⁸ For instance, rural areas have a higher percentage of elderly residents, who tend to have lower broadband adoption.¹⁴⁹ Since the 1960's, when poverty rates were first officially recorded, rural areas have been home to a disproportionate number of low-income Americans.¹⁵⁰ In 2012, 17.7 percent of the population, or about 8.5 million people, living in nonmetropolitan (nonmetro) areas were poor as compared to a poverty rate of 14.5 percent in metro areas.¹⁵¹ And this gap between nonmetro and metro poverty rates has widened in recent years, from 2.4 percentage points in 2011 to 3.2 percentage points in 2012.¹⁵² All of these factors, taken together, can make the economics of building out broadband-capable infrastructure in rural areas more challenging.

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Mechanism, WC Docket No. 02-60, Report and Order, 27 FCC Rcd 16678, 16832, Appx. B (2012) (*Healthcare Connect Fund Order*). Last year, the Commission initiated a review of the E-rate program (more formally known as the schools and libraries universal service support mechanism), focusing on how to ensure that our nation's students and communities have access to high-capacity broadband connections. *Modernizing the E-rate Program for Schools and Libraries*, Notice of Proposed Rulemaking, WC Docket No. 13-184, 28 FCC Rcd 11304, 11310-11, paras. 11-12 (2013) (*E-rate Modernization NPRM*).

¹⁴⁶ For instance, NTCA states that as of December 2010, more than half of its surveyed members had already deployed or intended to deploy softswitches by the end of 2011. NTCA Petition at 3 n.6.

¹⁴⁷ See 47 U.S.C. § 254(b). In the *USF/ICC Transformation Order*, the Commission adopted a performance goal of ensuring the universal availability of “modern networks capable of delivering broadband and voice service to homes, businesses and community anchor institutions.” It also adopted a performance goal of ensuring the universal availability of “modern networks capable of delivering mobile broadband and voice services in areas where Americans live, work and travel.” See *USF/ICC Transformation Order*, 26 FCC Rcd at 17681-82, paras. 51, 53.

¹⁴⁸ See *Eighth Broadband Progress Report*, 27 FCC Rcd at 10388, Tbl. 18.

¹⁴⁹ U.S. Census Bureau, American Fact Finder, Percent of the Total Population Who Are 65 Years and Over, Tbl. GCT0103, http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_12_1YR_GCT0103.US26&prodType=table (last visited Jan. 3, 2014) (16.4% of rural population is 65 and over based on 2012 American Community Survey); National Telecommunications and Information Administration and Economics and Statistics Administration in the U.S. Department of Commerce, *Exploring the Digital Nation: America's Emerging Online Experience*, 26-27 (June 2013), http://www.ntia.doc.gov/files/ntia/publications/exploring_the_digital_nation_-_americas_emerging_online_experience.pdf.

¹⁵⁰ U.S. Dep't of Agric., Economic Research Service, Geography of Poverty, <http://www.ers.usda.gov/topics/rural-economy-population/rural-poverty-well-being/geography-of-poverty.aspx#.EtYqcLK9KSM> (last visited Jan. 3, 2014).

¹⁵¹ *Id.*

¹⁵² *Id.*

89. In addition, the circumstances described above are frequently exacerbated on Tribal lands.¹⁵³ Tribal Nations face unique problems in acquiring communications services, with substantial barriers to deployment prevalent throughout Tribal lands. The resulting digital divide that persists between Tribal Nations and the rest of the country is well-documented.¹⁵⁴

90. We understand that some providers have proposed wireless products as the only service offering for some rural areas following the retirement of legacy PSTN services and facilities.¹⁵⁵ We note that there are a range of fixed wireless offerings in the marketplace today, offering differing speeds and usage allowances at price points that are typically higher than what are available from wireline offerings.¹⁵⁶ One of the critical questions we seek to explore is under what conditions will consumers prefer next generation wireless services over wireline alternatives. In addition, we want to better understand the viable business models that could support the deployment of fiber or other next generation wired technology in rural areas despite the challenges we have described. We are committed to exploring ways to ensure that, as networks transition, the access of rural American customers, including customers living on Tribal lands, is not just preserved, but enhanced, in all areas of the country.

91. We welcome ideas about how to structure experiments that will inform our policy decisions regarding the deployment of next generation networks in rural, high-cost areas. To this end, we plan to hold a workshop on rural broadband experiments in March 2014. We welcome innovative ideas that would coordinate actions across our various support programs, consistent with the statutory framework set forth in section 254. We look forward to an ongoing dialogue with a diverse group of interested stakeholders.

92. Today, we adopt one possible experiment to test how tailored economic incentives can advance the deployment of next generation networks, both wireline and wireless, in rural, high-cost areas of the country, including Tribal lands. In this experiment, Connect America funding will be available to entities to deploy high-speed, scalable, IP-based networks. The Connect America Fund is a key element of the Commission's universal service reforms to ensure that rural consumers, businesses, and anchor institutions have access to next generation networks. Consistent with the Commission's goals of bringing robust, scalable broadband networks to rural, high-cost communities across America,¹⁵⁷ and gaining experience and data on how to ensure universal access as networks transition, this experiment is designed to help inform our policy decisions in various proceedings pending before the Commission.¹⁵⁸ For

¹⁵³ See, e.g., *USF/ICC Transformation Order*, 26 FCC Rcd at 17868, para. 636; *Improving Communications Services for Native Nations*, CG Docket No. 11-41, Notice of Inquiry, 26 FCC Rcd 2672, 2673, para. 1 (2011) (*Native Nations NOI*).

¹⁵⁴ See, e.g., *Eighth Broadband Progress Report*, 27 FCC Rcd at 10371-72, paras. 50, 52 (noting that the percentage of Americans residing on Tribal lands without access to fixed broadband at a speed of 4 Mbps/1Mbps is approximately five times the national average, while the percentage of unserved Americans living on Tribal lands without fixed broadband access at those speeds in *rural* areas is more than eight times the national average) (emphasis added).

¹⁵⁵ See News Release, *AT&T to Invest \$14 Billion to Significantly Expand Wireless and Wireline Broadband Networks, Support Future IP Data Growth and New Services*, AT&T (Nov. 7, 2012), <http://www.att.com/gen/press-room?pid=23506&cdvn=news&newsarticleid=35661> ("In the 25 percent of AT&T's wireline customer locations where it's currently not economically feasible to build a competitive IP wireline network, the company said it will utilize its expanding 4G LTE wireless network – as it becomes available – to offer voice and high-speed IP Internet services.").

¹⁵⁶ *Connect America Fund*, WC Docket No. 10-90, Report and Order, 28 FCC Rcd 15060, 15066, para.16 n.33 (Wireline Comp. Bur. 2013) (*Phase II Service Obligations Order*).

¹⁵⁷ *USF/ICC Transformation Order*, 26 FCC Rcd at 17703-04, para. 107.

¹⁵⁸ We find ample legal authority to adopt this experiment. In addition to the authority discussed in section III.H above, we derive authority to provide Connect America funding for these experiments from the directives in section 254(b) to ensure access to advanced telecommunications and information services throughout the nation. See 47

(continued....)

example, it is important to understand what providers would be willing to offer what type of service in price cap areas in the event that a current incumbent ETC chooses not to participate in Connect America Phase II.

93. Below, we invite expressions of interest for such experiments in areas served by price cap carriers and areas served by rate-of-return carriers. Our focus is on proposals to build robust last-mile broadband to offer service to a wide range of end users in rural communities, rather than proposals for middle mile projects. We also are focused on conducting these experiments in rural areas lacking Internet access service that delivers 3 Mbps downstream/768 kbps upstream.¹⁵⁹ For both types of territories, funding could be made available in 2014 for discrete technology transition experiments within the existing Connect America budget. In the Further Notice of Proposed Rulemaking below, we seek comment on making available unallocated Connect America funding to support these structured technology transition experiments across a diverse cross section of rural America. We could make a limited amount of funding available for such experiments without increasing the overall size of the Connect America Fund, and without increasing the contribution burden on consumers.

94. Useful information that could be developed through such experiments will help address four sets of interrelated questions. First, from these experiments, we seek to test the assumption among certain providers that the geographic and demographic characteristics of certain rural areas, including Tribal lands, economically preclude the deployment of high-capacity fiber-based services that deliver higher speeds to those communities, absent some level of governmental support.¹⁶⁰ We seek to address the extent of interest among non-incumbent service providers to deploy high-speed, scalable, IP-based networks to serve consumers, businesses, and community-based institutions such as schools, libraries and healthcare providers in rural areas where broadband is lacking, potentially with assistance from the Connect America Fund, and to learn what specific measures to streamline the ETC designation process will encourage such entry by non-incumbent providers.¹⁶¹ Likewise, we seek to learn whether providers are willing and able to deliver services with performance characteristics well in excess of the minimum standards that price cap carriers accepting model-based support are required to offer to all locations in funded areas, for the same amount or less support than that calculated by the forward-looking cost model.¹⁶² We hope these experiments will generate “best practices” that will allow others to replicate experimental successes in other rural areas. We will explore how we can maximize the deployment of robust, future-proof networks most efficiently within our finite \$4.5 billion Connect America budget.

95. Second, based on the proposals submitted, we seek to develop a greater understanding of the geographic and demographic characteristics of areas where service providers (both incumbents and

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U.S.C. § 254(b) (2), (b) (3). *See also USF/ICC Transformation Order*, 26 FCC Rcd at 17685-86, paras. 61-65 (discussing section 254 as basis of authority for the Commission to take action to promote the ubiquitous deployment of, and consumer access to, modern broadband services over fixed and mobile networks). In addition, section 254(h) provides additional authority to take action to enhance access to advanced telecommunications and information services for schools, libraries and health care providers. *See* 47 U.S.C. § 254(h).

¹⁵⁹ This is consistent with the approach that the Commission took in implementing the second round of Connect America Phase I. *Connect America Fund*, WC Docket No. 10-90, Report and Order, 28 FCC Rcd 7766, 7772, para. 15 (2013) (*Phase I Round 2 Order*).

¹⁶⁰ As discussed in more detail below, the experiments will focus on unserved high-cost areas.

¹⁶¹ Under our current rules, only ETCs are eligible to receive high-cost Connect America Fund and Lifeline support. *See* 47 C.F.R. § 54.201(a).

¹⁶² Those minimum standards established for price cap carriers accepting model-based support in Phase II are to deliver speeds of at least 4 Mbps downstream/1 Mbps upstream, with round trip provider latency not to exceed 100 milliseconds, with a minimum of 100 GB of usage, at a price reasonably comparable to the price of similar terrestrial wireline offerings in urban areas. *See USF/ICC Transformation Order*, 26 FCC Rcd at 17726, para. 160; *Phase II Service Obligations Order*, 28 FCC Rcd at 15061, para. 2.

non-incumbents) would choose to offer wireless services at pricing reasonably comparable to urban wireline offerings. We seek to identify the likely features of such wireless services and the characteristics of wireless services that residential consumers would find to be an acceptable substitute for fiber-based broadband service.

96. Third, we seek to develop a greater understanding through these targeted experiments of how these transitions will impact anchor institutions and the people they serve. We are interested in learning more about the types of services that will be offered to schools, libraries, health care providers, and other anchor institutions that are served by next generation networks financed in part with Connect America support, and at what price. We seek to explore how the transitions will best ensure the provision of high quality broadband connectivity appropriate to the needs of rural health care providers and enable remote health monitoring at home, which is critical to consumers in rural areas who otherwise would have to travel great distances to have access to health care. We seek to examine whether and how the business case for deployment in rural areas, including Tribal lands, can be improved by securing the participation of anchor institutions to serve as key customers of the next generation networks.¹⁶³ Through these experiments, we hope to identify strategies to ensure that community-based institutions in rural areas, such as schools, libraries and health care providers, have access to next generation services.

97. Finally, we seek to work cooperatively with other governmental agencies to advance our shared objectives of ensuring that consumers, businesses and anchor institutions have access to next generation services. Under section 254, universal service is a joint federal and State responsibility.¹⁶⁴ We are particularly interested in how States, localities, Tribal governments, and other non-federal governmental bodies can provide assistance, through matching funding, in-kind contributions or other regulatory approvals and permits, to improve the business case for deployment of next generation networks.

98. Our intention here is not to delay any decisions regarding implementation of any universal service reforms, but rather to leverage whatever knowledge can be developed quickly through such experiments to inform our judgment on an ongoing basis as we address critically important policy issues in several of our pending universal service rulemaking dockets. Implementation of Phase II of the Connect America Fund will not be delayed by these experiments. Work on the forward-looking cost model that will be used to determine Phase II support amounts to be offered to price cap carriers is nearing completion, and we expect the Wireline Competition Bureau will be in a position to implement the Phase II challenge process and finalize the list of eligible census blocks in the months ahead.¹⁶⁵ We expect to implement the offer of model-based support to price cap carriers before the end of 2014. We

¹⁶³ See, e.g., Letter from John Windhausen, Exec. Director, Schools, Health & Libraries Broadband Coalition, to Marlene H. Dortch, Secretary, Federal Communications Commission, WC Docket No. 10-90, at 3 (filed Jan. 23, 2014) (SHLB *Ex Parte* Letter) (securing participation of anchor institutions essential component of successful deployment strategies to communities).

¹⁶⁴ 47 U.S.C. § 254; *USF/ICC Transformation Order*, 26 FCC Rcd at 17671, para. 15.

¹⁶⁵ The Wireline Competition Bureau is currently working on developing a forward-looking cost model for the purpose of making an offer of support to price cap carriers in exchange for a state-level commitment. See *Wireline Competition Bureau Announces Availability of Version 4.0 of the Connect America Fund Phase II Cost Model and Seeks Comment on Adopting Current Default Inputs in Final Version of Model*, WC Docket No. 10-90, Public Notice, DA 13-2304 (Wireline Comp. Bur. rel. Dec. 2, 2013). The Bureau has released two lists of census blocks that potentially would be eligible for the offer of model-based support under two different funding thresholds. See *Wireline Competition Bureau Releases New and Improved Illustrative Results for Connect America Cost Model Version 4.0 and Updated Methodology Documentation*, WC Docket No. 10-90, Public Notice, DA 13-2414 (Wireline Comp. Bur. rel. Dec. 18, 2013) (*Cost Model Version 4.0 Illustrative Results Public Notice*).

also are committed to resolving by the end of 2014 how the Connect America Fund will address the challenges of providing service to the most remote, difficult to serve areas of the country.¹⁶⁶

1. Connect America Phase II Experiments

99. One critical step to advancing technology transitions in rural America, including on Tribal lands, is to implement Phase II of the Connect America Fund. In the *USF/ICC Transformation Order*, the Commission concluded it would use a competitive bidding mechanism for Phase II of the Connect America Fund to award support in price cap territories in those areas where price cap carriers decline to make a state-level commitment in exchange for model-based support, and it sought comment on how to design this mechanism.¹⁶⁷ At various points in the Connect America proceeding, a number of parties have suggested that we implement a market-based mechanism in the form of a competitive application process as opposed to a reverse auction.¹⁶⁸ Others have focused on the mechanics and design of a reverse auction.¹⁶⁹ To date, we have implemented one reverse auction and shortly will conduct another.¹⁷⁰

100. We reaffirm the Commission's commitment to using competitive bidding to award support to the extent the price cap carriers decline to accept the offer of model-based support.¹⁷¹ That bipartisan decision was the culmination of efforts over a decade to reform universal service, and we remain firmly committed to completing implementation of the universal service reform framework previously adopted by the Commission.

101. One of the key questions remaining in the Connect America proceeding, however, is the specific form of the competitive bidding mechanism that will occur to the extent price cap carriers decline to elect model-based support: a reverse auction or some other form of competitive bidding.¹⁷² We do not resolve that question today.

¹⁶⁶ *USF/ICC Transformation Order*, 26 FCC Rcd at 17838, para. 534 (establishing budget of at least \$100 million to address the needs of remote areas); *see also* 26 FCC Rcd at 18093, paras. 1225-28 (seeking comment on consumer voucher approach or competitive bidding to address remote areas).

¹⁶⁷ *USF/ICC Transformation Order*, 26 FCC Rcd at 17732, para. 179.

¹⁶⁸ *See, e.g., Fiber-to-the-Home Council Americas' Petition for Rulemaking to Establish a Gigabit Race-to-the-Top Program*, RM-11703; WC Docket No. 10-90, at 17-20 (filed July 23, 2013) (FTTH Council Petition); National Association of State Utility Consumer Advocates et al. Comments, WC Docket No. 10-90 et al., at 68 (filed Jan. 18, 2012) (NASUCA et al. *USF/ICC Transformation FNPRM Comments*) (procurement approach superior to other untested auction methods); AT&T Comments, WC Docket No. 10-90 et al., at 100 (filed Apr. 18, 2011) (AT&T *USF Reform NPRM/FNPRM Comments*) (funding should be awarded through a competitive, application-based process).

¹⁶⁹ American Cable Association Reply, WC Docket No. 10-90 et al., at 17-19 (filed Feb. 17, 2012) (ACA *USF/ICC Transformation FNPRM Reply*); American Cable Association Comments, WC Docket No. 10-90 et al., at 12-17 (filed Jan. 18, 2012) (ACA *USF/ICC Transformation FNPRM Comments*).

¹⁷⁰ *Mobility Fund Phase I Auction Closes; Winning Bidders Announced for Auction 901*, AU Docket No. 12-25, Public Notice, 27 FCC Rcd 12031 (Wireless Telecom. Bur. 2012); *Tribal Mobility Fund Phase I Auction Rescheduled for February 25, 2014; Notice of Changes to Auction 902 Schedule Following Resumption of Normal Commission Operations*, AU Docket No. 13-53, Public Notice, 28 FCC Rcd 14656 (Wireless Telecom. Bur. 2013).

¹⁷¹ *USF/ICC Transformation Order*, 26 FCC Rcd at 17663, para. 1 (adopting "fiscally responsible, accountable, incentive-based policies to transform these outdated systems to the Connect America Fund" and establishing "a framework to distribute universal service funding in the most efficient and technologically neutral manner possible, through market-based mechanisms such as competitive bidding").

¹⁷² In the *USF Reform NOI/NPRM*, the Commission sought comment on the use of a form of a procurement auction to determine and target one-time subsidies for the deployment of broadband-capable networks in areas unserved by such networks. *Connect America Fund et al.*, WC Docket No. 10-90 et al., 25 FCC Rcd 6657, 6674-76, paras. 43-48 (2010) (*USF Reform NOI/NPRM*). Subsequently, in 2011, the Commission sought further comment on the use of

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102. We conclude that it would be desirable to test, on a limited scale, the use of an application-based competitive bidding process with objective selection criteria on a limited scale before finalizing decisions regarding the competitive bidding mechanism for full-scale implementation in WC Docket No. 10-90 to award support in price cap territories where the incumbent declines the offer of model-based support. We fully recognize that conducting nationwide competitive bidding – whatever form it ultimately takes – to award recurring support to preserve voice service and expand broadband service is a significant undertaking that has never been implemented in this country. We take seriously our fundamental obligation to preserve and advance universal service. Even though the Commission has solicited multiple rounds of comment on issues relating to competitive bidding mechanisms, there is no substitute for real world experience to inform our policy decisions. Service to potentially millions of consumers, businesses and anchor institutions may be impacted by the particular design of the competitive bidding process. For that reason, we wish to gain experience and data by experimenting with an application-based competitive bidding process with defined selection criteria that could inform our judgment regarding how to structure the Phase II competitive bidding mechanism.¹⁷³ We therefore adopt a Phase II experiment and describe below the application process for this experiment.

103. We conclude that soliciting and reviewing applications in the near term as a part of this Phase II experiment will assist us in making critical decisions in a future order regarding the objective evaluative criteria that should be applied more broadly in the competitive bidding process for Connect America Phase II, such as whether funding should be awarded solely based on cost per location, or whether we should give additional weight or bidding credits in defined circumstances.¹⁷⁴ We agree with commenters that a competitive bidding process will be most successful if it is focused on clear goals, is transparent, and is based on objective, relatively straightforward, well-defined, and measurable criteria.¹⁷⁵ In short, we expect this experiment will help us design a more effective nationwide competitive bidding mechanism, whether that ultimately takes the form of a reverse auction or some other form of competitive bidding with a limited number of objective, defined selection criteria. This experiment also will provide an opportunity to consider how better to ensure that all of our universal service programs are working

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competitive bidding to award funding to one provider per geographic area in all areas of the country, *Connect America Fund et al.*, WC Docket No. 10-90 et al., 26 FCC Rcd 4554, 4681-84, paras. 418-430 (*USF Reform NPRM/FNPRM*) (2011), and in the *USF/ICC Transformation FNPRM*, it proposed a structure and operational details for a competitive bidding mechanism to be implemented in areas where the incumbent price cap carrier declines to make a state-level commitment. *USF/ICC Transformation FNPRM*, 26 FCC Rcd at 18085-92, paras. 1190-1222.

¹⁷³ See, e.g., Letter from Jonathan Banks, Senior Vice President, Law and Policy, USTelecom, to Marlene H. Dortch, Secretary, Federal Communications Commission, WC Docket No. 10-90, at 1 (filed Jan. 23, 2014) (discussing possibility of limited experiment of a competitive application process); David Moore Comments, WC Docket No. 10-90 et al. (filed Oct. 29, 2013) (recommending proof-of-concept pilot for provision of Connect America funding to communities for the deployment of broadband networks); NASUCA et al. *USF/ICC Transformation FNPRM* Comments, at 66-68 (expressing concern about use of reverse auction and noting that use of untested auction methods is risky); Verizon Comments, WC Docket No. 10-90 et al., at 23 (filed Jan 18, 2012) (Commission should learn from its first use of competitive bidding in the universal service context) (Verizon *USF/ICC Transformation FNPRM* Comments). See also Time Warner Cable Reply WC Docket No. 10-90 et al., at 18-21 (filed Apr. 18, 2011) (Commission should pilot reverse auctions and other market-based mechanisms and then choose the most effective approach) (TWC *USF Reform NPRM/FNPRM* Reply).

¹⁷⁴ To illustrate the point, if we were to rely solely on the dollars bid per location in determining how to award funding, there could be situations where the lowest bid is to provide service meeting our specified minimum requirements, while another bid that is only slightly higher than the lowest bid (but below the reserve price) would provide a superior level of service. We need more information in order to determine whether and, if so, how to provide a preference for those who propose to bring robust, scalable networks to rural America.

¹⁷⁵ See, e.g., ACA *USF/ICC Transformation FNPRM* Comments at 2.

together effectively to ensure that residential consumers, small businesses, and anchor institutions have access to evolving services delivered over scalable networks.

a. Application Process

104. To assist entities willing to conduct experiments to deploy high-speed, scalable, IP-based networks, using either wireline or wireless technologies, or a combination of technologies, in rural, high-cost areas (including on Tribal lands) with Connect America funding, we describe in further detail elements of proposals that would assist the Commission in learning from these experiments. The technology transitions proposals that we invite here are not limited to proposals from incumbent providers. We encourage proposals from a wide range of entities and consortia of entities, including State and regional authorities, research and education networks, municipalities, Tribal governments, cable operators, competitive local exchange carriers, incumbent local exchange carriers, fixed and mobile wireless providers, wireless Internet service providers, utilities, and others.

105. Our invitation for Phase II experiment proposals will be conducted in two stages: a non-binding expression of interest stage and a formal proposal stage. We request expressions of interest to be filed by letter in WC Docket No. 10-90 by March 7, 2014, although we also will consider additional expressions of interest on a rolling basis after that date.¹⁷⁶ **We require that all expressions of interest be filed electronically.** Information to be included in an expression of interest might include, but not be limited to:

- The nature of the submitting entity or entities (e.g., incumbent LEC, municipality, utility, cable operator, wireless provider)
- Identification of the proposed service area for the experiment, including census block number, with any relevant information regarding the number of locations that could be served, including schools, libraries, and other anchor institutions
- The broadband technology or technologies to be deployed
- Contemplated service offerings (e.g., description of voice service, broadband speed tiers, nature of video service, if any) and pricing of such offerings
- If known, expected State and/or local or Tribal governmental participation in and/or support for the project (e.g., expedited permitting, access to rights of way, matching funds, etc.)
- Whether the proposal is expected to require one-time or continuing funding and a high-level estimate of the amount of funding requested

106. The formal proposal stage will follow the expression of interest stage. Submitting an expression of interest is not a precondition for submitting a formal proposal in the second stage.

107. The *USF/ICC Transformation Order* adopted a goal of “ensur[ing] universal availability of modern networks capable of providing voice and broadband service to homes, businesses, and community anchor institutions”¹⁷⁷ and adopted a framework for the Connect America Fund to achieve

¹⁷⁶ We delegate authority to the Wireline Competition Bureau and the Wireless Telecommunications Bureau (Bureaus) to take all necessary ministerial actions to implement this Phase II experiment, such as modifying filing deadlines as necessary.

¹⁷⁷ *USF/ICC Transformation Order*, 26 FCC Rcd at 17680, para. 48. The Commission “define[d] ‘community anchor institutions’ to mean schools, libraries, medical and healthcare providers, public safety entities, community colleges and other institutions of higher education, and other community support organizations and agencies that provide outreach, access, equipment, and support services to facilitate greater use of broadband service by vulnerable populations, including low-income, the unemployed, and the aged. We draw upon the definition used in implementing American Recovery and Reinvestment Act of 2009.” *See id.* at 17700, para. 102 n.163; *see also* 75 Fed. Reg. 3792, 3797 (Jan. 22, 2010).

these goals by extending broadband to millions of unserved locations over a five-year period, including connecting community anchor institutions.¹⁷⁸ The Commission directed the Wireline Competition Bureau to invite input on the unique needs of community anchor institutions as it developed the forward-looking model,¹⁷⁹ and it included reporting obligations on incumbent LECs to track the number of community anchor institutions that were connected.¹⁸⁰ In seeking comment in the Further Notice on the competitive bidding process to be implemented, to the extent price cap carriers declined to make a state-level commitment for model-based support, the Commission sought comment on how to leverage the budget to achieve these goals and “extend[] services to as many consumers, businesses, and community anchor institutions as possible.”¹⁸¹

108. We are particularly interested in projects that achieve the goals of the *USF/ICC Transformation Order* and demonstrate whether, and how, the competitive bidding process under Phase II of the Connect America Fund might be structured. We also are interested in learning how to best leverage the support available from all of the Commission's universal service programs to comprehensively serve the needs of rural communities, including their educational and health care needs. Experiments to fund modern networks in rural, high-cost areas from the Connect America Fund may serve to provide important information on the potential benefits and burdens of the technology transitions on health care providers and their patients, and on educational institutions and their patrons, in rural areas, while informing the Commission's policy decisions in implementing the Phase II competitive bidding process and more broadly, as well.

109. We plan to adopt a budget for these rural broadband experiments and will announce the selection criteria prior to the solicitation of formal proposals. In the FNPRM below, we seek comment on what amount of Connect America funding should be made available for this experiment and the objective selection criteria for the experiments. We anticipate that once the Commission takes action in response to the FNPRM, applications will be due within a relatively short time frame, such as 60 days. We therefore encourage potential applicants to consider how they might begin to structure their proposals early in the process. We expect a relatively small number of projects, reflecting a diversity of technologies (both wireline and wireless) in different geographic areas, will be selected for funding.

b. Geographic Areas Eligible for Support

110. In the *USF/ICC Transformation FNPRM*, the Commission proposed to use the same areas that are identified by the Connect America cost model as eligible for support in the competitive bidding process.¹⁸² It proposed to use census blocks as the minimum size geographic unit as eligible for

¹⁷⁸ *USF/ICC Transformation Order*, 26 FCC Rcd at 17673, 17725, paras. 20, 156.

¹⁷⁹ *Id.* at para. 102. The Bureau sought comment on issues related to the treatment of community anchor institutions in the forward looking cost model in the virtual workshop. See Letter from Michael Jacobs, Legal Advisor to the Chief, Wireline Competition Bureau, to Marlene H. Dortch, Secretary, Federal Communications Commission (filed July 22, 2013).

¹⁸⁰ The Commission required Connect America Fund recipients to report on the number of community anchor institutions that newly gain access to fixed broadband service as a result of CAF support. *USF/ICC Transformation Order*, 26 FCC Rcd at 17681, para. 52; see also 47 C.F.R. § 54.313(e)(3)(ii).

¹⁸¹ *USF/ICC Transformation FNPRM*, 26 FCC Rcd at 18085, para. 1190; see also *id.* at 18089-90, para. 1211 (asking “for any additional comments on the potential advantages and disadvantages of possible package bidding procedures and formats in the context of awarding support to ensure the universal availability of modern networks capable of delivering broadband and voice service to homes, businesses, and community anchor institutions”).

¹⁸² As originally proposed by the Commission in 2011, only those census blocks where the average cost per location is between the funding threshold and the extremely high cost threshold, and that is not served by an unsubsidized competitor, would be eligible for the Phase II competitive bidding process; census blocks in price cap territories where the average cost per location is above the extremely high cost threshold would be served through the Remote Areas Fund. *USF/ICC Transformation FNPRM*, 26 FCC Rcd at 18085-86, para. 1191 n.2277.

competitive bidding and sought comment on whether to adopt a rule that would aggregate eligible census blocks into census tracts for bidding, or to allow bidder-defined aggregation of census blocks.¹⁸³

111. We conclude that proposals in this rural broadband experiment in price cap territories will be entertained at the census tract level.¹⁸⁴ Making a county the minimum geographic area for an experimental proposal potentially could deter participation in this experiment from smaller providers. We therefore conclude that the minimum geographic area to be made available in the Phase II experiment is the census tract, with funding provided only for locations in eligible census blocks within that census tract.¹⁸⁵ We conclude any census blocks lacking broadband where the average cost per location is equal to or exceeds the likely funding threshold in the forward-looking cost model should be eligible for the rural broadband experiment.¹⁸⁶ We thus do not exclude from eligibility those census blocks where the average cost, as calculated by the model, exceeds the likely extremely high cost threshold. In other words, potential applicants should be free to seek funding to serve census tracts that contain census blocks where the average cost per location, as determined by the forward-looking cost model, exceeds the extremely high-cost threshold. We make this decision recognizing that the actual cost for a particular provider to serve the area may vary from the cost estimated by the cost model. To the extent parties can economically serve areas that fall above the extremely high-cost threshold with terrestrial voice and broadband with the assistance of support, we do not want to preclude those areas from being eligible in

¹⁸³ *Id.* at 18086, para. 1192. Commenters generally supported the use of the same census blocks that are subject to the offer of model-based support for the Phase II competitive bidding process. *See, e.g.*, ACA USF/ICC Transformation FNPRM Comments at 8; CenturyLink Comments, WC Docket No. 10-90 et al., at 12-13 (filed Jan. 18, 2012) (CenturyLink USF/ICC Transformation FNPRM Comments); CTIA Comments, WC Docket No. 10-90 et al., at 13 (filed Jan. 18, 2012) (CTIA USF/ICC Transformation FNPRM Comments); Frontier Comments, WC Docket No. 10-90 et al., at 14-15 (filed Jan. 18, 2012) (Frontier USF/ICC Transformation FNPRM Comments); NCTA Corporation Comments, WC Docket No. 10-90 et al., at 12 (filed Jan. 18, 2012) (NCTA USF/ICC Transformation FNPRM Comments).

¹⁸⁴ Under version 4.0 of the model, there are potentially roughly 23,000 eligible census tracts in price cap territories that are presumptively unserved by an unsubsidized competitor. A lesser number of census tracts would be unserved by any provider.

¹⁸⁵ Under version 4.0 of the model, there are potentially roughly 23,000 eligible census tracts in price cap territories that are presumptively unserved by an unsubsidized competitor. A lesser number of census tracts would be unserved by any provider. A number of commenters supported the proposal to develop bids at the census tract level. *See, e.g.*, ACA USF/ICC Transformation FNPRM Comments at 11-12.

¹⁸⁶ The Bureau already has published a list of census blocks that potentially would be eligible for the offer of model-based support under a \$48 and a \$52 funding threshold, based on the Connect America Cost Model v4.0. *See Cost Model Version 4.0 Illustrative Results Public Notice*, DA 13-2414. The Bureau expects shortly to release maps that visually depict those census blocks. We also expect the Bureau will release no later than 30 days before the initial expressions of interest are due a list that shows the support amounts associated with census tracts in price cap territories that contain one or more census blocks that are unserved by any provider of 3 Mbps downstream/768 kbps upstream where the average cost per location equals or exceeds the \$48 or \$52 illustrative funding threshold. Release of these illustrative results in no way prejudices where the funding threshold and extremely high-cost thresholds will be finalized for purposes of the offer of model-based support to price cap carriers, nor does it prejudice any future decisions regarding which areas will be eligible in a competitive bidding mechanism to occur after the model-based support to price cap carriers.

the Phase II experiment.¹⁸⁷ We hope that this experiment will provide us with useful data that could inform future decisions regarding the treatment of hard-to-serve remote areas of the country.¹⁸⁸

112. As noted above, one of our objectives in conducting this experiment is to determine how we can use targeted funding most efficiently to expand the availability of voice and broadband-capable infrastructure within the defined \$4.5 billion budget for the Connect America Fund. For purposes of the experiment, we expect that the amount of funding to be made available for any applicant will not exceed the amount of model-calculated support associated with the relevant geographic area, either a census tract or aggregation of census tracts.¹⁸⁹ This will enable us to test in the experiment the use of the cost model for purposes of setting reserve prices for future implementation of the Phase II competitive bidding process.

113. We are focused on using this experiment to deploy robust, scalable networks in rural areas lacking Internet access that delivers 3 Mbps downstream/768 kbps upstream. In the *USF/ICC Transformation Order*, the Commission adopted a policy that support not be provided to areas served by an unsubsidized competitor.¹⁹⁰ We remain committed to ensuring that Connect America funding is not used in areas where other providers are offering voice and broadband meeting the Commission's requirements. We do not think it would be efficient to conduct a challenge process to the eligibility of census blocks within a census tract when formal proposals are initially submitted; depending on the volume of proposals received, that could place a burden both on outside parties and Commission staff. Rather, we conclude that challenges to the eligibility of areas proposed for experiments are more appropriately entertained after the project has otherwise been tentatively selected for funding. To the extent a challenge is granted in whole or in part, funding for those locations would be adjusted appropriately. We expect that the Bureau to conduct the challenge process in a fashion similar to the process that the Wireline Competition Bureau has adopted, but not yet implemented, for determining eligible areas for model-based support.¹⁹¹

114. We recognize that there may be situations where the extent of competitive overlap for broadband services in a proposed project is de minimis. If a particular applicant proposes to serve an area where a current recipient of high cost support already provides broadband, the Commission would need to understand specifically why a deviation from our general policy of not supporting two or more providers in an area is justified and in the public interest. Likewise, to the extent an applicant proposes to include in its project locations that are served by an unsubsidized competitor, we would be interested in why

¹⁸⁷ Indeed, the Commission previously concluded in 2011 that price cap carriers accepting model-based support could count towards satisfaction of their deployment obligation locations above the extremely high-cost threshold, thus recognizing in particular instances the locations determined by the model to be "extremely high cost" in fact as not as costly to serve as other locations. *USF/ICC Transformation Order*, 26 FCC Rcd at 17729, n.279.

¹⁸⁸ The Commission sought comment in the *USF/ICC Transformation Order* on several alternatives for implementation of the Remote Areas Fund, including whether to hold a combined competitive bidding process for areas where the offer of model-based support is declined and the areas above the extremely high cost threshold. *Id.* at 18105, para. 1283.

¹⁸⁹ The Commission previously sought comment on using the model to determine reserve prices. *Id.* at 18090, para. 1212.

¹⁹⁰ *Id.* at 17701, para. 103; see also 47 C.F.R. § 54.5 (defining unsubsidized competitor).

¹⁹¹ In the months ahead, after adopting the forward looking cost model, the Bureau will be implementing a challenge process for Phase II to determine which census blocks are on the final list of census blocks eligible for the offer of model-based support. That challenge process will focus on census blocks presumptively between the funding threshold and the extremely high cost threshold. See *Connect America Fund*, WC Docket No. 10-90, Order, 28 FCC Rcd 7211 (Wireline Comp. Bur. 2013) (*Phase II Challenge Order*); *Connect America Fund*, WC Docket No. 10-90, Report and Order, 28 FCC Rcd 15060 (Wireline Comp. Bur. 2013) (*Phase II Service Obligations Order*).

deviation from our policy is justified and in the public interest.¹⁹² We seek comment in the attached FNPRM on how to define a de minimis overlap and what measures we should implement in the experiment to ensure that funds in the experiment are focused on unserved areas.

c. Provider Eligibility Requirements

115. In the *USF/ICC Transformation FNPRM*, the Commission proposed to require applicants for support to be designated an ETC at the time they applied to participate in the competitive bidding process, with a limited exception for Tribally-owned or controlled entities.¹⁹³ It proposed that all applicants be required to certify that they are financially and technically capable of providing the required service within the relevant geographic area.¹⁹⁴ The Commission indicated that it anticipated that price cap ETCs that decline model-determined support would be eligible to participate in the competitive bidding process, and it sought comment on the advantages and disadvantages of such an approach.¹⁹⁵

116. We seek to encourage the participation in this experiment from as many different entities as possible. We emphasize that we welcome applications from a wide range of entities, including cable operators, incumbent price cap carriers, competitive local exchange carriers, affiliates of neighboring incumbent providers, utilities, fixed and mobile wireless providers, wireless Internet service providers, State and regional authorities, research and education networks, municipalities, Tribal governments, and others.

117. *Timing of ETC Designation.* We conclude that entities selected to receive funding in an experiment must obtain ETC designation from either a State commission pursuant to section 214(e)(2) or the Commission pursuant to section 214(e)(6) of the Act.¹⁹⁶ Therefore, entities must offer voice telephony service at reasonably comparable rates as part of the experiment.¹⁹⁷ We decline at this time to adopt the suggestion of certain parties that we either forbear from ETC designation requirements, or that we preempt States from issuing ETC designations.¹⁹⁸ Rather, we adopt a more liberal process for the timing of ETC designation. Our experience in implementing this rule in the Phase II experiment will help us determine whether other measures are necessary regarding the ETC designation process when implementing the Connect America Phase II competitive bidding process more broadly.

118. We conclude that potential applicants in this rural broadband experiment need not be ETCs at the time they initially apply for funding at the Commission. Rather, we are persuaded that we should permit entities to obtain ETC designation after being selected for the award of Connect America funding, which we believe will encourage greater participation in the experiment by a wider range of

¹⁹² No support would be provided for the locations within the area of competitive overlap.

¹⁹³ *USF/ICC Transformation FNPRM*, 26 FCC Rcd at 18087, para. 1199 (proposing to require that applicants for support be designated as ETCs covering the relevant geographic area prior to participating in the competitive bidding process, but permitting a Tribally-owned or controlled entity that has an application for ETC designation pending at relevant application deadline to participate).

¹⁹⁴ *Id.* at 18087, para. 1200.

¹⁹⁵ *Id.* at 18087-88, paras. 1198-1201.

¹⁹⁶ *Id.* at 18062, paras. 1089-90.

¹⁹⁷ *USF/ICC Transformation Order*, 26 FCC Rcd at 17694, para. 84; *see also* 47 U.S.C. §§ 214(e)(1), 254(b)(3); 47 C.F.R. § 54.101.

¹⁹⁸ ACA USF/ICC Transformation FNPRM Reply at 10-11, 15-16; AT&T Reply, WC Docket No. 10-90 et al., at 6-7 (filed Feb. 17, 2012) (AT&T USF/ICC Transformation FNPRM Reply); Verizon Reply, WC Docket No. 10-90 et al., at 4-7 (filed Feb. 17, 2012); ACA USF/ICC Transformation FNPRM Comments at 21; FTTH Council Petition at 30-32.

entities.¹⁹⁹ ETC status must be confirmed before funding awarded through the experiment is disbursed. We expect this confirmation would occur within 90 days of funding award.

119. We recognize that the Commission declined to take that approach for the Mobility Fund Phase I and Tribal Mobility Fund Phase I, instead requiring entities to have obtained an ETC designation prior to filing the short form application, with an exception for Tribally-owned or controlled entities if they had an ETC application pending.²⁰⁰ Those requirements were adopted in part to ensure that applicants filing to participate in the auction were serious bidders. Based on our experience with the Mobility Fund Phase I and our review of the record, we now conclude that it would be appropriate to allow Connect America Phase II experiment applicants to obtain ETC designation after a preliminary determination has been made to award funding, rather than before filing an application with the Commission. We assume that applicants that submit formal proposals would seek to demonstrate their financial and technical capabilities throughout their application and will submit well-developed proposals that could be implemented quickly if selected. Based on our experience with the experiment, we can revisit this decision if necessary before implementing a competitive bidding process for Connect America Phase II more generally.

120. In the Mobility Fund Phase I, the Commission expressly permitted potential bidders to obtain conditional ETC designation prior to filing the short-form application.²⁰¹ Given our decision to permit entities to seek ETC designation after notification of tentative selection for funding award, we do not anticipate many parties would seek conditional ETC designation prior to applying for funding through this experiment. To the extent a party chooses to do so, however, and a State or this Commission issues a conditional ETC designation prior to selection for funding, we expect that the ETC designation in such situations will be finalized quickly as a pro forma matter after notification of selection for funding. Our experience with the experiments will inform our ultimate decisions of whether additional federal rules are necessary to ensure that the ETC designation process does not erect unnecessary barriers to competitive entry.

121. We also address the role of ETC designation in situations where there is a multi-stakeholder group working together to bring broadband-capable infrastructure to unserved communities. We welcome participation in the Connect America Phase II experiment from a wide variety of entities, including partnerships or consortia of entities that may include service providers, vendors, governmental agencies, and others. Indeed, in other contexts, we have recognized the value of consortia bulk purchasing in driving down service rates, increasing bandwidth, and reducing administrative overhead.²⁰²

122. For the Connect America Phase II experiment, we conclude that the requirement to be an ETC is met if one entity that is part of the group, partnership or consortia obtains ETC designation from the relevant State or this Commission. Thus, for instance, the entity that is designated as the ETC could be a competitive local exchange carrier that offers the telecommunications services eligible for support pursuant to section 254(c)(1) of the Act in partnership with another entity that constructs and operates the broadband-capable network. Comparable to the requirements adopted by the Commission for consortia

¹⁹⁹ See, e.g., Letter from Steve Traylor, Exec. Director, Nat'l Assoc. of Telecommunications Officers and Advisors, to Marlene H. Dortch, Secretary, Federal Communications Commission, WC Docket No. 10-90, at 1 (filed Jan. 23, 2014); SHLB *Ex Parte* Letter at 3; Comments of WiredWest, WC Docket No. 10-90, at 1-2 (filed Jan. 23, 2014); Letter from Brett Kilbourne, Vice President and Deputy General Counsel, Utilities Telecom Council, to Marlene H. Dortch, Secretary, Federal Communications Commission, WC Docket No. 10-90, at 3-4 (filed Dec. 9, 2013); ACA USF/ICC Transformation FNPRM Comments at 20; AT&T USF/ICC Transformation FNPRM Reply at 7; Clearwire Comments, WC Docket No. 10-90, at 8 (filed Jan. 18, 2012); NTCH Comments, WC Docket No. 10-90, at 2-5 (filed Jan. 18, 2012); AT&T USF Reform NPRM/FNPRM Comments at 101-102.

²⁰⁰ *USF/ICC Transformation Order*, 26 FCC Rcd at 17799, 17809, paras. 392, 439.

²⁰¹ *Id.* at 17799, n.665; 47 C.F.R. §§ 54.1003(a), 54.1005(a)(3).

²⁰² See *Healthcare Connect Fund Order*, 27 FCC Rcd at 16702, para. 54.

leaders in the Healthcare Connect Fund, we require that the ETC be legally and financially responsible for providing the section 254(c)(1) supported telecommunications service; serve as the point of contact for the Commission, USAC, the relevant State, and Tribal governments, as appropriate; be responsible for submitting required forms and certifications to the Commission, USAC, the relevant State, and Tribal governments, as appropriate; receive funding disbursements; and be responsible for recordkeeping and coordinating any audits for members of the group.²⁰³

d. Term of Support

123. In the *USF/ICC Transformation FNPRM*, the Commission proposed that the term of support for the Phase II competitive bidding process would be the same as that adopted for providers that accept the state-level model-determined support, but it also sought comment on whether a longer time period, such as ten years, would be appropriate for recipients of support awarded through a competitive bidding process.²⁰⁴

124. We solicit proposals in this Phase II experiment from entities seeking either one-time support or recurring support. The Commission previously offered two rounds of Phase I incremental support to price cap carriers to extend broadband-capable infrastructure in unserved areas.²⁰⁵ We now wish to explore the possibility of providing one-time support on a competitive basis to extend broadband-capable networks in areas where providers expect to cover their ongoing operating costs with end user and other sources of revenue. The experiment will help us determine the extent to which parties may be willing to build out broadband in certain areas with one-time rather than recurring support.

125. We conclude that support provided through the Phase II experiment may be provided for up to ten years, subject to existing requirements and the availability of funds.²⁰⁶ We are persuaded that it is appropriate to provide support for up to ten years to those providers that commit to deploy high-speed, scalable, IP-based networks that will provide residential consumers, small businesses and anchor institutions with an evolving level of service. We acknowledge the possibility that over time marketplaces may change, and it is possible that some funded areas may see new competitors at some point in the future.²⁰⁷ At the same time, we also recognize that some entities may be unwilling to make the necessary long-term investments to build robust future-proof networks in areas that are uneconomic to serve absent continued support beyond a five-year term.²⁰⁸

126. We are not persuaded by those who argue that the term of support should be the same for all recipients of Connect America support, regardless of whether they receive support based on the forward-looking cost model or through competitive bidding.²⁰⁹ There is no inherent reason that the terms of the competitive offer need to be identical to the offer of model-based support. Indeed, having different terms of support in different areas may provide us with valuable information regarding the impact of different rules that will help inform future policy decisions regarding universal service reforms. In

²⁰³ *Id.* at 16769-70, para. 206.

²⁰⁴ *USF/ICC Transformation FNPRM*, 26 FCC Rcd at 18087, para. 1197.

²⁰⁵ See *USF/ICC Transformation Order*, 26 FCC Rcd at 17715-23, paras. 132-51; *Connect America Fund*, WC Docket No. 10-90, Report and Order, 28 FCC Rcd 7766 (2013) (*Phase I Round 2 Order*).

²⁰⁶ A number of parties suggested providing a longer term for Phase II support awarded through a competitive bidding process. See ADTRAN Reply, WC Docket No. 10-90 et al., at 7-8 (filed Feb. 17, 2012); Windstream Comments, WC Docket No. 10-90 et al., at 23-25 (filed Jan. 18, 2012) (Windstream USF/ICC Transformation FNPRM Comments).

²⁰⁷ See, e.g., ACA USF/ICC Transformation FNPRM Reply at 22-23.

²⁰⁸ See, e.g., Windstream USF/ICC Transformation FNPRM Comments at 22-25.

²⁰⁹ See, e.g., Independent Telephone & Telecommunications Alliance Comments, WC Docket No. 10-90 et al., at 15-16 (filed Jan. 18, 2012).

particular, in those areas where price cap carriers elect model-based support for a term of five years, we will need to decide whether and if so how recurring support should be provided after the end of the five-year period. By allowing parties submitting proposals for the rural broadband experiment to indicate the length of time (up to ten years) for which they seek, we hope to gain real world experience that will enable us to evaluate whether providers are more willing to deploy future-proof infrastructure when assured of a funding stream over a ten-year period as opposed to a five-year period. As is true for all high-cost recipients, ETCs that receive Phase II support for ten years will be subject to annual reporting, including updates on their progress towards meeting their planned targets, as well as audits, allowing the Commission to monitor the projects during the term. Balancing these considerations, we conclude that providing a longer term of support in the experiment could provide us with valuable information regarding how to elicit greater participation in the Connect America Phase II competitive bidding process in price cap territories, which will help ensure that funding is targeted efficiently to expand broadband-capable infrastructure throughout the country.

e. Other Considerations

127. We remain committed to the principle of not providing duplicative funding in a given geographic area. In the attached FNPRM, we seek comment on how the selection of projects through the competitive bidding experiment should affect the inclusion of those areas in the offer of model-based support to price cap carriers or in the Connect America Phase II competitive bidding process and can ensure that public funds do not substitute for private capital.

128. The availability of Connect America funding for technology transition experiments is subject to the applicable requirements of sections 214 and 254 of the Act and will be conditioned on complying with all relevant universal service rules that the Commission has adopted or may adopt in the future in the relevant rulemaking proceedings, including but not limited to ETC requirements to the extent that they apply to recipients of high-cost and Lifeline support,²¹⁰ reporting requirements, audits, and enforcement mechanisms for non-compliance with rules.²¹¹ In the attached Further Notice, we seek comment on any additional rules or requirements we should adopt in the context of such experiments.

129. To the extent applicants believe compliance with a specific requirement is not necessary in the context of an experiment, they should identify with specificity those rules that should be waived or modified. Funding also may be conditioned on compliance with any additional commitments made by the applicant in conjunction with its application to participate in the Phase II experiment.

2. Next Generation Rural Broadband Experiments in Areas Where the Incumbent is a Rate-of-Return Carrier

130. We welcome experiments regarding technology transitions in areas served by incumbent rate-of-return carriers as well as price cap carriers, as such experiments would provide us with valuable information from a variety of geographic areas. As a complement to experiments in price cap territories, we therefore invite proposals on a competitive basis in geographic areas where the incumbent provider is a rate-of-return carrier.²¹² The Commission intends to implement rural broadband experiments in areas served by rate-of-return carriers before the end of 2014, which will provide a potential pathway to longer term reforms regarding support for broadband-capable infrastructure in such areas.

²¹⁰ We recognize that ETC requirements do not apply to entities that receive support to serve schools, libraries, or rural health care providers.

²¹¹ See *supra* para. 55.

²¹² The Commission previously sought comment in the *USF Reform NPRM/FNPRM* whether to utilize a competitive bidding process to award support throughout the country, including in areas where the incumbent provider is a rate-of-return carrier. *USF Reform NPRM/FNPRM*, 26 FCC Rcd at 4681-84, paras. 418-430.

131. We recognize that historically the Commission has implemented different universal service mechanisms for the larger price cap carriers than for the smaller companies, which are typically rate-of-return regulated carriers. In the *USF/ICC Transformation Order*, the Commission recognized that smaller rate-of-return carriers “operate in many of the country’s most difficult and expensive areas.”²¹³ The Commission largely preserved the existing support mechanisms, with some modifications, rather than implementing the same reforms for both price cap carriers and rate-of-return carriers. Instead of the approach adopted for price cap carriers – which are required to serve 100 percent of locations in specific census blocks deemed eligible for support – it implemented a more flexible approach under which rate-of-return carriers are required to offer broadband service meeting the initial requirement of at least 4 Mbps downstream and 1 Mbps upstream upon reasonable request, in recognition of “the economic challenges of extending service in the high-cost areas of the country served by rate-of-return carriers.”²¹⁴

132. At the same time, the Commission also concluded that “all universal service high-cost support should ultimately be distributed through [Connect America Fund] for all recipients.”²¹⁵ A number of parties have specifically urged the Commission to adopt a Connect America Fund to support the expansion of broadband in areas served by rate-of-return carriers.²¹⁶ We wish to explore the possibility of making funding available in such areas in a way that would assist the Commission in deciding how to provide targeted and efficient support over the longer term. Such a mechanism could functionally replace a high-cost mechanism that the Commission decided to eliminate and phase out in the *USF/ICC Transformation Order*, safety net additive, which was originally adopted to encourage new investment in modern networks.²¹⁷ These experiments would not prejudice any future actions regarding modifications to the current universal service mechanisms available to incumbent rate-of-return carriers.

133. In implementing any experiments in areas served by rate-of-return carriers, we recognize the statute expressly contemplates a different process for ETC designation in areas served by rate-of-return carriers than it does in areas served by incumbent price cap carriers. Section 214(e)(2) specifies that before designating an additional eligible telecommunications carrier for an area served by a rural telephone company, the State commission shall find that the designation is in the public interest.²¹⁸ The relevant State and the Commission must agree on any service area redefinition that would create a service territory for a new ETC that is different than the incumbent’s service area.²¹⁹ In implementing Phase I of the Mobility Fund, the Commission adopted a limited forbearance from requiring that the service area of an ETC conform to the service area of any rural telephone company serving the same area, but only with respect to conditional ETC designations for participating in the Mobility Fund Phase I auction.²²⁰ The

²¹³ *USF/ICC Transformation Order*, 26 FCC Rcd at 17674, para. 26.

²¹⁴ *Id.*

²¹⁵ *Id.* at para. 27.

²¹⁶ See Initial Comments of the National Exchange Carrier Association, Inc.; National Telecommunications Cooperative Association; Organization for the Promotion and Advancement of Small Telecommunications Companies; and the Western Telecommunications Alliance, WC Docket No. 10-90 et al., at 3-4 (filed Jan. 18, 2012).

²¹⁷ See *USF/ICC Transformation Order*, 26 FCC Rcd at 17756, para. 248. The Commission found that safety net additive (SNA) was not fulfilling its purpose of encouraging “additional significant investment in telecommunications plant” because the majority of incumbent carriers qualified for SNA due to line loss rather than network investment. *Id.* at 17757, paras. 249-50.

²¹⁸ 47 U.S.C. § 214(e)(2).

²¹⁹ 47 U.S.C. § 214(e)(5).

²²⁰ *Connect America Fund et al.*, WC Docket No. 10-90 et al., Second Report and Order, 27 FCC Rcd 7856 (2012) (*Mobility Fund Phase I Forbearance Order*); see also *Petition of NTUA WIRELESS, LLC for Designation As an Eligible Telecommunications Carrier Pursuant to Section 214(e)(6) of the Communications Act of 1934, As Amended*, WC Docket No. 09-197, *Universal Service Reform – Mobility Fund*, WT Docket No. 10-208, Order, DA-13-2318

(continued....)

Commission concluded that forbearance in that situation advanced “the Act’s and the Commission’s goals of promoting access to mobile service over current and next generation wireless networks in areas currently without such service by reducing barriers to participation in Phase I of the Mobility Fund.”²²¹

134. We are interested in assessing the level of interest among rate-of-return carriers in participating in a rural broadband experiment, but also are interested in expressions of interest from others as well. As with the Phase II experiment, interested parties may file a letter in WC Docket No. 10-90 no later than March 7, 2014, expressing their interest in conducting a rural broadband experiment in rate-of-return territories with Connect America funding.²²² We also will consider additional expressions of interest on a rolling basis after that date. **We require that all expressions of interest be filed electronically.** Consistent with the approach adopted for experiments in price cap territories, experimental funding would only be provided to entities in rate-of-return areas that are ETCs, and therefore to the extent a non-ETC is tentatively selected for the award of funding, it would then need to obtain ETC designation. As an ETC, it would be required to provide the supported service – voice telephony – at rates reasonably comparable to rates for similar services in urban areas.

135. We emphasize that participation in this experiment will not alter existing universal service obligations and receipt of support by current rate-of-return ETCs, regardless of whether a competitive ETC receives experimental support in the same service area. Any Connect America funding awarded in such a rural broadband experiment would be additive to current support for ETCs.

136. We seek comment in the attached FNPRM on a number of issues, including whether to implement a staggered implementation schedule for formal proposals in rate-of-return areas and whether to modify the process for experiments in rate-of-return study areas compared with how we implement experiments in price cap territories.

3. Non-Substantive Rule Amendments

137. We now amend the Code of Federal Regulations to eliminate current section 54.309 (which described the non-rural support mechanism that the Commission eliminated in the *USF/ICC Transformation Order*) and replace that section with a new section 54.309 and 54.310 to address Phase II. The new rule sections codify decisions previously made by the Commission in the *USF/ICC Transformation Order* regarding the offer of model-based support to price cap carriers, the deployment schedule for Phase II, and the Phase II service obligations.

B. Commissioned Research for Persons with Disabilities (Report and Order in CG Docket Nos. 10-51 and 03-123)²²³

138. Ensuring that people with disabilities continue to have access to evolving communication technologies is central to our core values and statutory responsibilities. The technology transitions hold great promise for all consumers – innovative services, applications, and devices that may allow persons with disabilities more and better access to communications services, such as multimedia communications incorporating HD audio video and real-time text. But we are equally mindful that, across the country, persons with disabilities currently rely on certain existing legacy services, such as TTY, for access to the communications network. The enduring value of universal access includes all Americans; we must learn

(Continued from previous page)—————
(Wireline Comp. Bur. & Wireless Telecom. Bur. rel. Dec. 4, 2013) (adopting same limited forbearance with respect to conditional ETC designations for participating in Tribal Mobility Fund Phase I auction).

²²¹ *Mobility Fund Phase I Forbearance Order*, 27 FCC Rcd at 7857, para. 2.

²²² *See supra* para. 105.

²²³ In this subsection of the draft, we are proceeding under CG Docket Nos. 10-51 and 03-123 and the record in those proceedings.

all we can now about how to preserve and enhance communications services for persons with disabilities in an all-IP world.

139. To that end, in this Report and Order in CG Docket Nos. 10-51 and 03-123, we take additional steps to structure and fund research designed to further the Commission's multiple goals of ensuring that TRS is functionally equivalent to voice telephone services and improving the efficiency and availability of TRS. As discussed further below, we make clear that the Managing Director may enter into arrangements with federal research agencies other than the National Science Foundation, provide guidance on the funding mechanism to be employed by the Managing Director in selecting and implementing research projects, and establish an initial budget for research and development (R&D) projects funded through the TRS Fund.

140. Our actions today will help ensure that R&D on TRS not directly related to provider compliance with our mandatory minimum standards is conducted in an efficient manner, and that the results of that research benefit the public. The research efforts will produce information and analysis about the impact of the technology transitions on persons with disabilities, which will, in turn, inform our future decision-making to support technology innovations while preserving and enhancing universal access.

1. Federal Research Partners

141. The Commission in the June 2013 *VRS Reform Order* directed the Managing Director "to determine how best to structure and fund research designed to further the Commission's multiple goals of ensuring that TRS is functionally equivalent to voice telephone services and improving the efficiency and availability of TRS,"²²⁴ and to "enter into an arrangement (or contract with the TRS Fund administrator to enter into an arrangement, if appropriate) with the National Science Foundation (NSF) to conduct the research."²²⁵ Since that time, we have explored other avenues for potential partnerships with federal agencies that would further our objectives. We now find that the *VRS Reform Order* unnecessarily limited research to partnerships with the NSF, and find good cause to waive that limitation.

142. Generally, the Commission's rules may be waived for good cause shown.²²⁶ The Commission may exercise its discretion to waive a rule where the particular facts make strict compliance inconsistent with the public interest.²²⁷ In addition, the Commission may take into account considerations of hardship, equity, or more effective implementation of overall policy on an individual basis.²²⁸ Waiver of the Commission's rules is therefore appropriate only if special circumstances warrant a deviation from the general rule, and such a deviation will serve the public interest.²²⁹

143. We find good cause to waive the limitation in the *VRS Reform Order* to make clear that the Managing Director, in consultation with the Commission's Chief Technology Officer (CTO), the Chief of the Office of Engineering and Technology (OET), and the Chief of the Consumer and Governmental Affairs Bureau (CGB), may have the research conducted through appropriate arrangements

²²⁴ *Structure and Practices of the Video Relay Service Program, Report and Order and Further Notice of Proposed Rulemaking, Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities*, CG Docket Nos. 10-51, 03-123, Report and Order and Further Notice of Proposed Rulemaking, 28 FCC Rcd 8618, 8630, para. 22 (2013) (*VRS Reform Order*). The Managing Director's determination is to be made "in consultation with the CTO, the Chief of OET, and the Chief of CGB." *Id.*

²²⁵ *VRS Reform Order*, 28 FCC Rcd at 8630, para. 22.

²²⁶ 47 C.F.R. § 1.3 ("Any provision of the rules may be waived by the Commission on its own motion or on petition if good cause therefor is shown.")

²²⁷ *Northeast Cellular Telephone Co. v. FCC*, 897 F.2d 1164, 1166 (D.C. Cir. 1990) (*Northeast Cellular*).

²²⁸ *WAIT Radio v. FCC*, 418 F.2d 1153, 1159 (D.C. Cir. 1969); *Northeast Cellular*, 897 F.2d at 1166.

²²⁹ *Northeast Cellular*, 897 F.2d at 1166.

with federal agencies other than the NSF.²³⁰ This waiver, by itself, has no budgetary impact. It will allow the Commission to take full advantage of all of the resources that are available from federal agencies, such as the National Institute on Aging, a component of the National Institutes of Health²³¹ and the U.S. Department of Veterans Affairs. Such flexibility will maximize the Commission's ability to partner with these and other agencies with different sets of resources and areas of expertise, which will facilitate the efficient and effective conduct of R&D in different subject matter areas.²³² Increased efficiency also will have the effect of maximizing the value of R&D expenditures from the TRS Fund. For these reasons, we find such a waiver will serve the public interest.

2. Selecting Projects for Funding

144. The Commission sought comment on the mechanism by which R&D should be funded, including the review criteria that should be applied to identify appropriate research and the appropriate types of awards.²³³ In addition, the Commission proposed "to restructure and redefine the TRS Advisory Council and seek comment on what role the new advisory body should have with respect to providing input on the types of research it believes should be funded under the arrangement."²³⁴

145. Consistent with our discussion in the *VRS Reform Order*, we direct the Chief Technology Officer (CTO) (or, in the absence of a CTO, the Chief of the Office of Engineering & Technology (OET), or the OET Chief's designee), to select R&D projects for funding that:²³⁵

- Are focused on exploring the impact of IP-based technologies and services on persons with disabilities;
- Are intended to further the Commission's goal of ensuring that TRS is functionally equivalent to voice telephone services; and
- Are intended to improve the efficiency and availability of TRS.

146. By way of example, research to evaluate the effectiveness, efficiency and consumer response to current and future approaches to delivering TRS, including automated speech-to-text and video plus automated speech-to-text technologies, as well as efforts to assess and improve

²³⁰ The CTO (or, in the absence of a CTO, the Chief of OET, or the OET Chief's designee), shall serve as the Commission's primary point of contact for all such agreements. *See VRS Reform Order*, 28 FCC Rcd at 8630, para. 22. We take no action today that would limit the FCC's otherwise existing discretion to enter into agreements with other agencies for various purposes pursuant to the Economy Act, 31 U.S.C. § 1535 and other more specific authorities.

²³¹ *See, e.g.*, Press Release, Federal Communications Commission, FCC and National Institute on Aging to Partner on Research Advancing Accessibility to Communications for Americans with Hearing Disabilities (Dec. 12, 2013), http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-324668A1.doc.

²³² We are obligated to ensure that the goals of the statute are met "in the most efficient manner." 47 U.S.C. § 225(b)(1).

²³³ *VRS Reform Order*, 28 FCC Rcd at 8711, para. 241.

²³⁴ *Id.* at 8630, para. 22; *see also id.* at 8712-14, paras. 244-49.

²³⁵ In the past, the Commission has disallowed expenses submitted by providers that are associated with research and development (R&D) except to the extent that such expenses are necessary to allow a provider to meet our mandatory minimum standards. *See, e.g., Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities*, Report and Order, Order on Reconsideration, and Further Notice of Proposed Rulemaking, CC Docket Nos. 90-571, 98-67, 03-123, 19 FCC Rcd 12475, 12547-48, para. 189 (2004) (*2004 TRS Order*). R&D conducted with federal research agencies may well prompt the Commission to modify its mandatory minimum standards, but projects will not be undertaken that are designed to allow individual providers to meet those standards. *See VRS Reform Order*, 28 FCC Rcd at 8629-30, paras. 20-22.

interoperability, performance, and functionality, are consistent with these criteria.²³⁶ When considering future projects, the Managing Director should prioritize those projects that can be achieved in a reasonable period of time and maximize the achievement under each of the four criteria above.

147. We defer our consideration of the role the TRS Advisory Council should have with respect to R&D funded by the TRS Fund to a future order, in which we will address the broader issues regarding the role and structure of the TRS Advisory Council raised in the FNPRM.²³⁷ In the meantime, however, we will begin the process of gathering and incorporating stakeholder input on the types of research needed to improve the functional equivalency and efficiency of TRS through workshops, stakeholder roundtables, or other means. We also note that commenters urged the Commission to fund research on specific issues, including the “needs of specialized Deaf communities, such as the Spanish-speaking and other Deaf community members,”²³⁸ and the “mental, physical, and emotional impact working in a VRS call center has on interpreters.”²³⁹ We direct the CTO (or, in the absence of a CTO, the Chief of OET, or the OET Chief’s designee) to consider these proposals, and such other proposals as may be submitted to the record in this proceeding.

3. Budget

148. In the FNPRM that accompanied the *VRS Reform Order*, the Commission proposed to set an initial research budget of \$3 million and sought comment on that proposal.²⁴⁰ Commenters’ replies on this issue were mixed, ranging from opposition to the expenditure of any funds,²⁴¹ to calls for earmarking additional funds for research on specific issues,²⁴² to a call for a higher overall R&D budget.²⁴³

149. We adopt our proposal to set an initial research budget of \$3 million, which is approximately 40 percent of the expenditures reported by VRS providers for Fund year 2012 on compensable R&D.²⁴⁴ We believe this amount will allow the Commission and its federal research agency

²³⁶ Press Release, Federal Communications Commission, FCC and National Institute on Aging to Partner on Research Advancing Accessibility to Communications for Americans with Hearing Disabilities (Dec. 12, 2013), http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-324668A1.doc.

²³⁷ *VRS Reform Order*, 28 FCC Rcd at 8712-14, paras. 244-249.

²³⁸ ASL Services Holdings Comments, CG Docket Nos. 03-123, 10-51, at 6 (filed Aug. 19, 2013). Such research might focus on other demographic aspects of the Deaf community. For example, as the Commission has noted previously, a disproportionate number of deaf American adults are unemployed, receive Social Security, live in poverty, or have household income below \$20,000. *See Structure and Practices of the Video Relay Service Program, Report and Order and Further Notice of Proposed Rulemaking, Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities*, CG Docket Nos. 10-51, 03-123, 26 FCC Rcd 17367, 17376, para. 22 (2011) (*VRS Reform FNPRM*).

²³⁹ Registry of Interpreters for the Deaf (RID) Comments, CG Docket Nos. 03-123, 10-51, at 10-11 (filed Aug. 19, 2013). RID specifically calls for research on the impact of changes in the Average Speed of Answer rules on CAs. *Id.* at 17.

²⁴⁰ *VRS Reform Order*, 28 FCC Rcd at 8711, para. 241.

²⁴¹ *See* Sorenson Comments, CG Docket Nos. 03-123, 10-51, at 28 (filed Aug. 19, 2013).

²⁴² *See* Communications Workers of America and National Interpreter Action Network Comments, CG Docket Nos. 03-123, 10-51, at 8 (filed Aug. 19, 2013).

²⁴³ *See* Telecommunications for the Deaf and Hard of Hearing et al. Comments, CG Docket Nos. 03-123, 10-51, at i, 11-13 (filed Aug. 19, 2013) (Consumer Groups VRS Reform FNPRM Comments) (proposing that the R&D budget be “set as a percentage of all compensable and noncompensable research and development costs and that it should not expire.”); Video Relay Services Consumer Association (VRSCA) Reply, CG Docket Nos. 03-123, 10-51, at 4 (filed Aug. 18, 2013).

²⁴⁴ *See* Letter from David Rolka, President, Rolka Loube Saltzer Associates (RLSA), to Marlene H. Dortch, Secretary, Federal Communications Commission, CG Docket Nos. 10-51, 03-123, at 3 (filed Apr. 23, 2013).

partners to conduct a number of research projects comparable to the initial project discussed above, while providing certainty regarding the initial level of R&D to be funded directly from the TRS Fund. We will consider authorizing additional amounts for particular categories of research or specific research projects upon request of the Managing Director, which request shall be made after consultation with the CTO (or, in the absence of a CTO, the Chief of OET, or the OET Chief's designee) and the Chief of CGB.

150. Providers continue to receive compensation for R&D expenses that are necessary to meet our mandatory minimum standards.²⁴⁵ But the argument that these R&D efforts “replac[e] private-sector innovation” is unconvincing.²⁴⁶ Consumers of relay services do not purchase such services in a private market. The market for TRS services, small by comparison to that for traditional telecommunications and information services, generally does not attract private capital for research and development beyond the efforts of TRS providers who are compensated primarily, if not entirely, from the federal TRS Fund. Congress, in recognizing the need for relay services for persons with hearing and speech disabilities, charged the FCC with ensuring that the services evolve with improvements in technology.²⁴⁷ To meet our statutory obligations, we take the next step in the course set by the Commission in the *VRS Reform Order* and adopt a budget for TRS research and development.

C. Research and Development of a Numbering Testbed (Order in WC Docket No. 13-97)²⁴⁸

151. The technology transitions raise challenges and opportunities for the assignment of telephone numbers within the North American numbering plan and for the features, capabilities, and security of numbering-related databases. Getting these numbering systems right is essential to preserving core values of competition and consumer protection. Number portability, for example, encourages competition by allowing consumers to respond to providers' price and service changes without losing their phone numbers. Numbering databases allow for efficient interconnection among providers, furthering competition and entry of new providers.²⁴⁹ Call routing and call completion policies fulfill consumers' valid expectations that by dialing a telephone number they will successfully reach whomever they wish to call. The integrity of numbering information is crucial for securing voice-related services, e.g., to prevent or reduce telephony denial-of-service attacks, phishing, illegal telemarketing practices or fraud, thus furthering public safety and consumer protection goals. As networks transition, we must ensure that these values, which are embedded in our current numbering systems and policies, are preserved and enhanced.

152. To that end, we hereby delegate to the CTO (or, in the absence of a CTO, the Chief of OET, or the OET Chief's designee) in consultation with the Chiefs of the Wireline Competition Bureau (WCB), OET and Office of Strategic Planning & Policy Analysis (OSP), the authority to facilitate the development of a telephony numbering testbed for collaborative, multi-stakeholder research and exploration of technical options and opportunities for telephone numbering in an all-IP network. The numbering testbed is intended to be a proof of concept. Developing ideas in a testbed avoids disrupting current systems and would allow interested parties to work through technical feasibility constraints to

²⁴⁵ See, e.g., *2004 TRS Order*, 19 FCC Rcd at 12547-48, para. 189.

²⁴⁶ Sorenson Reply, CG Docket Nos. 03-123, 10-51, at 22 (filed Sept. 18, 2013).

²⁴⁷ See, e.g., 47 U.S.C. § 225(a)(3) (defining TRS as providing “functionally equivalent” telephone service for persons with hearing or speech disabilities); 47 U.S.C. § 225(d)(2) (requiring that the Commission’s regulations “do not discourage or impair the development of improved technology”).

²⁴⁸ In this subsection of the draft, we are proceeding under WC Docket No. 13-97 and the record in that proceeding.

²⁴⁹ See, e.g., Letter from Scott M. Deutchman, Vice President and Deputy General Counsel, Neustar, Inc., to Marlene H. Dortch, Secretary, Federal Communications Commission, GN Docket Nos. 12-353 and 13-5, et al., Att. at slide 6 (filed Jan. 13, 2014) (Neustar Jan. 13 *Ex Parte* Letter).

allow for the broadest range of policy options and outcomes.²⁵⁰ The testbed could facilitate the development of a future telephone numbering system by exploring what options are feasible without undue encumbrance by legacy notions and systems. Informed by the research, the Commission would be in a better position to consider what steps may be necessary to facilitate the technology transitions and make informed decisions toward the creation of a next generation, efficient, secure and flexible number management system, while maintaining backward compatibility to the extent possible.

153. In this Order, we set out our intent to facilitate cooperative research and development into a numbering testbed that builds upon the work of multiple technical bodies and experts to explore issues of number management in a post-transition world. We describe the general purposes of a numbering testbed and direct the CTO to host an initial workshop, open to all technical experts, at which outside experts, advisory groups, standards organizations and other stakeholders who wish to participate can work collaboratively to design and launch a numbering testbed. We also seek comment in a Notice of Proposed Rulemaking below on the funding and budget for the testbed and other numbering research initiatives.

1. Background

154. Much work has already been done by the Commission and multiple expert bodies to identify issues and concerns with regards to the future of telephone numbering. We would expect that any testbed launched after the initial workshop would build upon these efforts.

155. In 2004, the Commission requested that the North American Numbering Council (NANC), a Commission federal advisory committee, investigate the future of numbering.²⁵¹ The NANC established the Future of Numbering Working Group (FON WG) “to explore changes to the numbering environment, including new and future technologies, the impact of marketplace and/or regulatory changes and innovations on telephone numbering.”²⁵² The FON WG has been exploring alternative numbering block allocations, machine-to-machine numbering usage, and the relationship between telephone numbers and geography.²⁵³

156. In September 2012, the Technology Advisory Council (TAC) responded to the Commission’s questions concerning the technology transitions. In addressing what databases will be necessary or helpful in an all-IP network, the TAC produced a matrix setting forth the role and function of different databases today, during the technology transitions, and potentially in an all-IP network.²⁵⁴ The PSTN B Successor Networks Working Group reported that there is no agreement on mapping E.164 addresses²⁵⁵ to SIP/VoIP endpoints.²⁵⁶ The TAC noted the potential disassociation of numbers from geography, specific services, and service providers.²⁵⁷ This leads to issues of authenticating the number,

²⁵⁰ See Lawrence Lessig, *Code: And Other Laws of Cyberspace* (1999) (discussing interplay between technical code, legal code, and societal norms).

²⁵¹ North American Numbering Council, Meeting Notes (Nov. 16, 2004), http://www.nanc-chair.org/docs/nowg/FONWG_111604_Meeting_Notes.doc.

²⁵² FCC, NANC Working Groups, http://transition.fcc.gov/wcb/cpd/Nanc/working_groups.html.

²⁵³ Future of Numbering Working Group, Meeting Notes, 1-2 (Nov. 14, 2013), http://www.nanc-chair.org/docs/fon/November_14_2013_FoN_Meeting_Notes.docx.

²⁵⁴ Technology Advisory Council, Presentation to the Federal Communications Commission, 18 (Sept. 24, 2012)(TAC Sept. 24 Presentation), <http://transition.fcc.gov/bureaus/oet/tac/tacdocs/meeting92412/TAC-9-24-12-Presentations.pdf>.

²⁵⁵ E.164 refers to the ITU recommendation for the international public telecommunication numbering plan and outlines the format of telephone numbers. See “E.164: The International public telecommunication numbering plan,” ITU, last amended 2012, <http://www.itu.int/rec/T-REC-E.164/en>.

²⁵⁶ TAC Sept. 24 Presentation at 58.

²⁵⁷ *Id.* at 55.

spoofing, geo-location updates, and how “identity” is determined.²⁵⁸ For example, the ease and low cost of originating calls via VoIP services has enabled large-scale robocalling, denial-of-service attacks²⁵⁹ on public safety organizations and medical providers, along with telemarketing fraud and VoIP-based phishing, as perpetrators can spoof originating phone numbers in call signaling messages.

157. The TAC also noted the need to associate telephone numbers with IP address information,²⁶⁰ one solution to which is ENUM.²⁶¹ Going forward, the TAC noted the “need for standardization on a global basis as we move to all IP.”²⁶² In the all-IP network, telephone numbers will be one set of addressing identifiers among many, which include domain names, IP addresses, and service specific identifiers. The TAC reviewed the different characteristics of these different identifiers and how telephone numbers compared.²⁶³ The TAC recommended that the Commission “[c]onsider multi-stakeholder forums to define requirements of E.164 real-time communications and for new databases that map E.164 to IP data, [and s]ponsor a series of Technical Workshops involving network operations experts to address technical transitions issues moving to an all IP network.”²⁶⁴

158. In April 2013, the Commission released an NPRM, Order, and Notice of Inquiry (NOI) on a variety of numbering issues, including direct access to the telephone numbering resource by interconnected VoIP service providers; the Order also initiated a six-month trial for direct access, now completed.²⁶⁵ The NPRM proposed allowing interconnected VoIP providers to obtain telephone numbers directly from the North American Numbering Plan Administrator (NANPA) and the Pooling Administrator (PA), subject to certain requirements. The Commission also sought comment “on a forward-looking approach to numbers for other types of providers and uses, including telematics and public safety, and the potential benefits and number exhaust risks of granting providers other than interconnected VoIP providers direct access to numbers.”²⁶⁶ In the NOI, the Commission sought comment on a range of issues regarding a long-term approach to numbering resources, seeking comment on the recommendations made by the TAC regarding the future of numbering.²⁶⁷ “In particular, the TAC recommended that the Commission consider ‘[f]ully decoupl[ing] geography from number.’ We seek

²⁵⁸ *Id.* at 21, 55.

²⁵⁹ *See, e.g., Hacking the TDoS Attack*, Dark Reading (May 30, 2013), <http://www.darkreading.com/attacks-breaches/hacking-the-tdos-attack/240155809>.

²⁶⁰ TAC Sept. 24 Presentation.

²⁶¹ ENUM uses the Internet domain name system (DNS) to map numbers to Internet end point identifiers, such as SIP URIs. *Id.* at 38; *see generally* P. Faltstrom, M. Mealling, The E.164 to Uniform Resource Identifiers (URI) Dynamic Delegation Discovery System (DDDS) Application (ENUM), IETF RFC 3761 (2004), <http://www.ietf.org/rfc/rfc3761.txt>; H. Schulzrinne, The tel URI for Telephone Numbers, Internet Engineering Task Force Request For Comments: 3966 (2004), <http://tools.ietf.org/html/rfc3966>.

²⁶² TAC Sept. 24 Presentation at 19.

²⁶³ *Id.* at 53-56. *See, e.g.,* Nikhyl Singhal, *Phone Numbers Are Dead, They Just Don't Know It Yet*, TechCrunch (Aug. 28, 2010), <http://techcrunch.com/2010/08/28/phone-numbers-dead/>; The Phone of the Future, *The Economist* (Nov. 30, 2006) (“Today, numbers are on the wane thanks to the ease with which mobiles can store and retrieve names and the ubiquity of e-mail addresses and other internet-based identity tags, such as Skype names.”), <http://www.economist.com/node/8312260>.

²⁶⁴ TAC Sept. 24 Presentation at 59 (stating “[a] clear national policy on the Future of Numbering is... an essential precondition for further progress on the National Broadband Plan, SIP/VoIP interconnection and the inevitable transition to all IP networks”).

²⁶⁵ *See generally* *Numbering Policies for Modern Communications et al.*, WC Docket No. 13-97 et al., Notice of Proposed Rulemaking, Order, and Notice of Inquiry, 28 FCC Rcd 5842 (2013) (*Direct Access Order*).

²⁶⁶ *Id.* at 5843-44, para. 1.

²⁶⁷ *Id.* at 5844, para. 4.

comment on the specifics of such a transition, including how it would affect public safety communications, access to communications networks by Americans with disabilities, and reliability in routing of communications and interconnection.”²⁶⁸

159. In response to the *Technology Transitions PN*,²⁶⁹ the Commission received several comments concerning numbering. Numerous parties noted the need for numbering research, testing and trials.²⁷⁰ Commenters stated that a trial is needed to explore the changing role of the databases in an all-IP network,²⁷¹ and recommended that any trial should be open to carriers, VoIP providers, database administrators, and others with an interest in numbering.²⁷² In Charge Systems noted the need to identify and validate customers and telephone numbers.²⁷³ Neustar noted the decoupling of geography from telephone number assignments as well as the potential elimination of telephone number allocation on a rate center basis.²⁷⁴ NARUC commented on the need to consider numbering resource utilization and optimization.²⁷⁵

160. Building upon the work and recommendations of these expert bodies, we direct today that the Commission work collaboratively with government and non-government experts towards basic research into the design and development of a prototype post-transition number management system as described below. We believe that the Commission, in cooperation with other experts, can play an important, beneficial and industry-neutral role in accelerating the development of this pre-market, non-production system.

2. Developing the Testbed

161. The testbed goals would be to enable research into numbering in an all-IP network, unencumbered by the constraints of the legacy network. Such a testbed might address number allocation and management as well as database lookup for call routing. The effort could include two facets: (i) a small, non-production server system for prototyping, and (ii) one or more workshops or electronic fora to convene an open, cross-industry, and collaborative group of technical experts, including, in particular,

²⁶⁸ *Id.* at 5887, para. 118.

²⁶⁹ *Technology Transitions PN* at 6348 (“We also seek comment on whether there are other trials we should consider, such as additional numbering trials, trials to facilitate better access for persons with disabilities, and whether there are additional trials concerning the TDM to IP or copper to fiber transitions that we should evaluate.”).

²⁷⁰ See, e.g., AT&T July 8, 2013 Comments, GN Docket No. 13-5, at 9, 38-41; InCharge Systems July 3, 2013 Comments, GN Docket No. 13-5, at 4; Cal. PUC Comments, GN Docket No. 13-5, at 9; Shockey Consulting Reply, GN Docket No. 13-5, at 10 (“The role of the Commission in the ongoing technical discussion of IP numbering databases should be to gently ‘nudge’ the industry towards a selecting appropriate technical solutions but also make sure that technical and policy discussions about such databases are conducted in an open multistakeholder consensus driven process where all elements of the industry can reasonably participate and the costs and governance structures of these existing or new databases are well understood.”). A number of commenters recommended that the Commission should wait for the results of the VoIP numbering trial (now completed) before implementing further numbering trials. See Cox Reply, GN Docket No. 13-5, at 6-7; GVNW Consulting Comments, GN Docket No. 13-5, at 7; NTCA Comments, GN Docket No. 13-5, at 12.

²⁷¹ AT&T Comments, GN Docket No. 13-5, at 9, 38-41; COMPTTEL Comments, GN Docket No. 13-5, at 22-23; ATIS Comments, GN Docket No. 13-5, at 10-11 (noting that during the transition the databases will have to support both the TDM network and the IP network); Neustar at 10 (stating “that the eventual consolidation of numbering databases is in the best interest of service providers and their consumers”).

²⁷² AT&T Comments, GN Docket No. 13-5, at 9, 38-41.

²⁷³ InCharge Systems July 3, 2013 Comments, GN Docket No. 13-5, at 4.

²⁷⁴ Neustar Comments, GN Docket No. 13-5, at 8.

²⁷⁵ NARUC Reply, GN Docket No. 13-5, at 11-12; see also Neustar Jan. 13 *Ex Parte* Letter, Att. at slide 9.

software engineers with implementation experience, to sketch and prototype a system for managing numbering resources and obtaining information about these resources. Any testbed should be designed to result in experiences and output that will inform the work of relevant industry standards bodies, Commission advisory bodies and the Commission, using the Internet principles of “rough consensus and running code.”²⁷⁶

162. *The Testbed.* As a small, non-production server system, the testbed itself would be an engineering sandbox designed by technical experts in which to explore the future of numbering in a pre-standards, non-operational, and non-production environment.²⁷⁷ We anticipate that the testbed numbering system would use common industry approaches, such as HTTP XML or RESTful APIs and JSON, supporting operations such as allocating a number “just in time” or in a block from the available pools of numbers; track to whom the number has been allocated (either a traditional carrier, a VoIP provider or, for 800 numbers, a RespOrg²⁷⁸ or end user); create credentials for end users and carriers that allow them to assert that they have been issued such a number; rapidly port with validation, including new mechanisms similar to domain names that provide users with secure porting keys for their numbers to greatly reduce erroneous and malicious ports (and the related slamming); associate validated number user information to prevent spoofing;²⁷⁹ provide information to carriers and providers on how to interconnect to the number; facilitate VoIP interconnection; and promote efficient number utilization including enabling authorized parties to collect information about number usage and assignment, e.g., to effectively prevent number hoarding or inefficient utilization.²⁸⁰

163. We further expect that the testbed would include features such as security (including the ability to mitigate spoofing, phishing, unwanted calls, and denial-of-service attacks),²⁸¹ the ability to authenticate numbers, traceability, efficiency, portability,²⁸² and reliability.²⁸³ Any testbed should be

²⁷⁶ See Paul Hoffman, *The Tao of IETF: A Novice’s Guide to the Internet Engineering Task Force* (2012), <http://www.ietf.org/tao.html>.

²⁷⁷ For examples of similar testbeds and collaborative sandboxes, see *Next Generation 9-1-1 (NG9-1-1) System Initiative: Proof of Concept Deployment Plan*, U.S. Dep’t of Transp. (2008), http://www.its.dot.gov/ng911/pdf/NG911_POC_DeployPlan_FINAL_v1.0.pdf.

²⁷⁸ A RespOrg (Responsible Organization) is “[t]he entity chosen by a toll-free subscriber to manage and administer the appropriate records in the toll free Service Management System for the toll free subscriber.” 47 C.F.R. § 52.101(b).

²⁷⁹ See, e.g., Tom McGarry, *The Future of Telephone Numbers - TN 3.0*, at 5 (Jan. 7, 2013) (noting the need for authentication of telephone numbers), http://www.neustar.biz/corporate/docs/the_future_of_telephone_numbers.pdf.

²⁸⁰ See, e.g., *Order Instituting Investigation on the Commission’s Own Motion to Determine the Extent to Which the Public Utility Telephone Service Known as Voice over Internet Protocol Should Be Exempted from Regulatory Requirements*, Public Utilities Commission of the State of Calif. (Feb. 11, 2004) (expressing concern over the impact of VoIP on efficient utilization of the numbering resource), http://docs.cpuc.ca.gov/published//agenda_decision/33960.htm; In re *On The Commission’s Own Motion, To Commence An Investigation Into Voice Over Internet Protocol Issues in Michigan*, Case No. U-14073, Michigan Public Service Commission (Mar. 16, 2004) (investigating the effect of VoIP on telephone numbering resources), http://www.dleg.state.mi.us/mpsc/orders/comm/2004/u-14073_03-16-2004.pdf.

²⁸¹ The importance of validating the calling number was highlighted by the Truth in Caller ID Act of 2009, Pub. L. No. 111-331, codified at 47 U.S.C. § 227(e) (cross-referencing 47 U.S.C. § 503(b)(2)(E)); see also Neustar Jan. 13 *Ex Parte* Letter, Att. at slide 10.

²⁸² See generally *Telephone Number Requirements for IP-Enabled Services Providers; Local Number Portability Porting Interval and Validation Requirements; IP-Enabled Services; Telephone Number Portability; Numbering Resource Optimization*, WC Docket Nos. 07-243, 07-244, 04-36, CC Docket Nos. 95-116, 99-200, Report and Order, Declaratory Ruling, Order on Remand, and Notice of Proposed Rulemaking, 22 FCC Rcd 19531 (2007) (*VoIP LNP Order*), *aff’d sub nom. National Telecomms. Cooperative Ass’n v. FCC* (D.C. Cir. Apr. 28, 2009).

designed to promote competition and create predictable dialing protocols for end users. A properly designed testbed should also take into account the needs of emergency communications and N11 dialing for special services,²⁸⁴ as well as any potential implications for persons with disabilities.²⁸⁵ International implications should be explored as well as the impact of the IPv6 migration.²⁸⁶

164. To be most useful to the Commission, the testbed should permit exploration of what is feasible for an all-IP, post-transitions number system, identify issues, and flag what actions may be necessary in order to facilitate the technology transitions. Questions that could be explored include those noted above as well as: how can the number system be simplified?²⁸⁷ Can multiple databases exist and can they be distributed? What are the implications of decoupling numbering from geography or services?²⁸⁸ How can we measure actual number utilization and prevent the inefficient use of numbering resources? What interfaces must be specified? What databases are necessary?²⁸⁹ How will routing be handled and what information is necessary within the database? What are the implications for number utilization, particularly in light of machine-to-machine communications? Who can a number be assigned to, how can that person be authenticated, and what information about that person needs to be in the database?

165. While we do not anticipate needing a block of NANP numbers to initiate the test bed, would the availability of a block of numbers facilitate the goals of this test bed? If so, can the block be drawn from existing resources such as pANI or the 555 NXX or 456 NPA (carrier-specific services) blocks or should they be drawn from other numbering resources? How large a resource allocation is needed and are there Commission actions that need to be taken to facilitate allocation?

(Continued from previous page)—————

²⁸³ See *The Proposed Extension of Part 4 of the Commission's Rules Regarding Outage Reporting To Interconnected Voice Over Internet Protocol Service Providers and Broadband Internet Service Providers*, PS Docket No. 11-82, Report and Order, 27 FCC Rcd 2650, 2651, para. 1 (2012).

²⁸⁴ See *Amending the Definition of Interconnected VoIP Service in Section 9.3 of the Commission's Rules; Wireless E911 Location Accuracy Requirements; E911 Requirements for IP-Enabled Service Providers*, GN Docket No. 11-117, PS Docket No. 07-114, WC Docket No. 05-196, Notice of Proposed Rulemaking, Third Report and Order, and Second Further Notice of Proposed Rulemaking, 26 FCC Rcd 10074, 10075, paras. 2-3 (2011) (proposing measures to improve 911 availability and location determination for users of VoIP by applying the Commission's 911 rules to "outbound-only" VoIP services and developing a framework to ensure that all covered VoIP providers can provide automatic location information for VoIP 911 calls).

²⁸⁵ See *IP-Enabled Services*, WC Docket No. 04-36, WT Docket No. 96-198, CG Docket No. 03-123, CC Docket No. 92-105, Report and Order, 22 FCC Rcd 11275, 11283-291, paras. 17-31 (2007) (*TRS Order*); Twenty-First Century Communications and Video Accessibility Act of 2010, Pub. L. No. 111-260, 124 Stat. 2751 (2010) (as codified in various sections of Title 47 of the United States Code) (CVAA); see also Amendment of Twenty-First Century Communications and Video Accessibility Act of 2010, Pub. L. No. 111-265, 124 Stat. 2795 (2010) (making technical corrections to the CVAA).

²⁸⁶ See, e.g., TAC Sept. 24 Presentation at 19 ("Need for standardization on a global basis as we move to all IP"), <http://transition.fcc.gov/bureaus/oet/tac/tacdocs/meeting92412/TAC-9-24-12-Presentations.pdf>; Robert Cannon, *Potential Impacts on Communications from IPv4 Exhaustion and IPv6 Transition*, FCC Staff Working Paper (2010), <http://www.fcc.gov/working-papers/potential-impacts-communications-ipv4-exhaustion-ipv6-transition>.

²⁸⁷ See Australian Communications and Media Authority, *Telephone Numbering - Future Directions*, at 2 (2011) (articulating simplicity and transparency as a guiding regulatory principle for the future of numbering), <http://www.acma.gov.au/~media/Industry%20Partnershipsand%20Numbering/Information/pdf/Telephone%20Numbering%20Future%20Directions.PDF>.

²⁸⁸ See, e.g., Tom McGarry, *The Future of Telephone Numbers - TN 3.0*, at 5 (Jan. 7, 2013), http://www.neustar.biz/corporate/docs/the_future_of_telephone_numbers.pdf.

²⁸⁹ TAC Sept. 24 Presentation at 17, <http://transition.fcc.gov/bureaus/oet/tac/tacdocs/meeting92412/TAC-9-24-12-Presentations.pdf>.

166. *Workshop(s)*. We expect to convene one or more workshops to facilitate the design and development of the testbed. These workshops are intended to be engineering working sessions, modeled after ‘hackathons’ in which groups of technical experts collaborate intensively to work through technical challenges and create prototype systems. Participation is open to any and all technical experts. We particularly welcome software engineers with experience implementing telephony-related systems.

167. The initial workshop will be hosted by the CTO and will focus on the basic design and launch of the testbed as a non-production, prototype system for managing numbering resources and obtaining information about these resources in a post-transitions world. The workshop has three objectives: (1) to identify the gaps in the existing system for an all-IP environment and opportunities for simplification; (2) to facilitate proposals for a general architecture for the testbed; and (3) to facilitate the infrastructure and organization (mailing list, conference calls) for those individuals that are interested in doing the prototyping and participating further in the testbed process. Subsequent engineering workshops will continue, as needed, to assist participants in refining the testbed and in further exploring the many technical questions raised by an all-IP, post transitions numbering management system.

3. Process and Timeline

168. We direct the CTO in coordination with WCB, OET, and OSP to release a Public Notice within 90 days announcing the initial workshop and providing additional details about the scope of the testbed. We encourage the CTO to collaborate in these efforts with experts within the Commission, the NANC and other Commission advisory committees, industry standards organizations, academic institutions, and others with numbering management expertise.

169. We expect the testbed to run for about a year. At six months, we invite interested parties and workshop participants to file in this docket initial read-outs and reports related to the testbed. At the conclusion of the testbed, interested parties and participants should file final read-outs and reports. We anticipate that the testbed would be hosted at a neutral but as of yet undetermined location. We anticipate that maintaining the physical testbed will involve a modest expense of a few thousand dollars per year. We seek comment today in a further notice of proposed rulemaking below on whether the Commission should fund the testbed and other research into numbering management, and if so, what should be the source of funding and budget. We also seek comment on how we can best identify any further research that should be facilitated by the Commission to supplement the work of stakeholders participating in any testbed and under what timeframe that research should be performed.

170. For further information concerning the testbed and the workshop, please contact Robert Cannon, Robert.Cannon@fcc.gov, (202) 418-2421.

V. DATA COLLECTION PROPOSAL FOR ONGOING DATA INITIATIVE (GN DOCKET NO. 13-5)²⁹⁰

171. Gathering data on how the technology transitions affect the enduring values of consumer protection, universal service, competition and public safety is essential to developing a common set of facts that will enable data-driven decision-making. While all of the experiments described above, to differing degrees, will generate data that address these core values, they are, by design, limited in scope and/or geography. Thus, we propose to look beyond these experiments to gather information to provide the factual record we will need to make decisions that reflect the technology transitions experience across the nation. We therefore issue this Proposal for Ongoing Data Initiative to explore ways to evaluate our current data gathering efforts, extend them as appropriate, and strive toward obtaining a more comprehensive factual account of the technology transitions and how they are impacting network values. In particular, data that deepen our understanding of how the technology transitions are affecting consumers will enrich the ongoing public dialogue about how we may best advance these transitions while ensuring that consumers and the enduring values set forth in the Act are protected. We expect these

²⁹⁰ In this subsection of the draft, we are proceeding under GN Docket No. 13-5 and the record in that proceeding.

data will both expand the scope of our discussion as new challenges are brought to the table, and keep us on track by taking off the table issues based solely on unfounded concerns that sometimes arise in an informational vacuum. We expect the public will thereby be better informed and equipped to address any challenges that may arise during the technology transitions, and that this Commission will be better positioned to make sound legal and policy decisions that maintain the enduring values and advance the technology transitions while protecting consumers.²⁹¹

172. We propose that our diverse data collection efforts be guided by overarching basic principles, and seek comment on these below. We also propose and seek comment on three distinct ways to enhance the Commission's collection data efforts related to the technological transitions: (1) improving our consumer complaint and inquiry processes and data to better understand the technology transitions from the consumers' perspective; (2) conducting structured observations of NG911 deployment; and (3) other ways of improving information on key questions of consumer values and decision-making in the transitioning communications world. These efforts are not exhaustive. We welcome views on other ways for the Commission to gather information on the technology transitions and their impacts on enduring network values.

A. Principles for Data Collection

173. This inquiry envisions a multi-pronged, ongoing data collection effort. As with the diverse experiments described above, however, we expect all of our data collection efforts will be guided by common principles. First, we propose to gather and collect data through an open, transparent process. We intend to explore what questions we should ask, how we should ask them, and of whom. Second, we will strive to collect data from multiple sources, including outside experts and advisors; collaboration with other federal agencies, State, local, Tribal governments and leaders; automated data gathering;²⁹² and crowd-sourcing. We value input from all stakeholders and from neutral observers. Third, we are mindful of the need for clear and consistent definitions and metrics as a precondition to enabling the analytical comparisons and aggregation of feedback necessary to provide a comprehensive picture of the technology transitions experience. Fourth, we expect to make all of the data we gather publicly available as a resource to all interested parties, while protecting privacy concerns. We want to give all stakeholders the tools they need to do their own analysis and help us as we examine the impact of the technology transitions. We welcome feedback on these principles and whether there are others that should guide us in these efforts.

B. Gathering Data to Document Technology Transitions from the Consumer's Perspective

174. The experiments described above will provide some data on the impact of technology transitions on consumers. Apart from these experiments, we propose to take affirmative steps to gather information on how consumers are experiencing the technology transitions. We want to ensure that consumers know how to give the Commission feedback on their transition experiences, to create an inclusive data-sharing environment with State, local, and Tribal governments, and to optimize our collection and analysis of consumer complaint and inquiry data. Specifically, we consider and seek comment on how we can (1) make better use of the Commission's data on consumer complaints and inquiries; (2) work with State, local, and Tribal government organizations to ensure a comprehensive and consistent data gathering and evaluation effort that reflects consumer experiences; and (3) increase the transparency and accessibility of the data we collect. We seek comment on these proposals.

175. In comments to the *Technology Transitions PN*, several commenters acknowledged the importance of comprehensive and consistent data, including the necessity of effectively collecting and analyzing consumer complaint data. Commenters such as Public Knowledge argue that trial plans must

²⁹¹ See *supra* para. 8.

²⁹² An example of such automated data gathering is the Commission's *Measuring Broadband America* project.

include “comprehensive, pre-considered metrics for how to measure the trial’s impact on customers’ quality of service.”²⁹³ Other commenters note that specific categories for gathering and analyzing complaints are appropriate here, e.g., call quality and dropped calls.²⁹⁴ Some commenters note that the technology transitions may necessarily create a shift of consumer complaint processing from the State and local level to the federal level.²⁹⁵ Finally, some commenters suggest that there is the potential for an observer or “best behavior” effect, in which experimenters may improve their behavior in response to the knowledge that they are being observed.²⁹⁶

176. By enhancing our own efforts to collect data on how the technology transitions are impacting consumers, working collaboratively with State, local, and Tribal entities, and improving the transparency of our data, we aim to create – and make available – a more comprehensive factual picture of the technology transitions from the consumers’ perspective.

1. Enhancing our Consumer Complaints and Inquiries Data

177. The Commission intends to supplement the consumer data gleaned from the experiments described here with its own consumer complaints and inquiries data. Consumers communicate with the Commission on a wide variety of issues. The Consumer and Governmental Affairs Bureau (CGB) serves as the Commission’s focal point for collecting, processing, and analyzing consumer complaints and inquiries. Our consumer complaint and inquiry system is the key way the Commission hears from consumers about Commission issues and reports on them.²⁹⁷ We are committed to enhancing our complaint intake, analysis, and reporting, including by improving the searchability of our consumer complaints database.²⁹⁸

178. Commenters note that the technology transitions require the Commission to develop metrics for measuring its impact.²⁹⁹ Enhancing our complaint intake, analysis and reporting is a useful mechanism for developing the necessary metrics to judge the impact of the experiments, as well as the technology transitions generally. We expect that these efforts will build on the Commission’s ongoing efforts to enhance consumer data gathering, reporting and analysis. We agree with commenters that specific categories for gathering and analyzing complaints are appropriate here, e.g., call quality and dropped calls, along with other service-related issues such as slamming, cramming and violations of the

²⁹³ Public Knowledge Comments, GN Docket No. 13-5, at 12.

²⁹⁴ Matrix Comments, GN Docket No. 13-5, at 10; Bulls Eye and Access Point Comments, GN Docket No. 13-5, at 6 (stating that the Commission must develop benchmarks that can measure whether and how the transition has affected the customer experience – for example, measurements of call quality, dropped calls, customer complaints, increased busy signals and network congestion).

²⁹⁵ See, e.g., Minn. PUC and Dept. of Comm’c Comments, GN Docket No. 13-5, at 4; Mich. PSC Comments, GN Docket No. 13-5, at 6-7 (stating that the FCC needs to develop a clear process for referring wireless/VoIP/IP transition complaints from the States to the FCC so they can be resolved in a timely manner).

²⁹⁶ See, e.g., Cbeyond, et.al. Comments, GN Docket No. 13-5, at 17; CenturyLink Comments, GN Docket No. 13-5, at 13-14.

²⁹⁷ For example, the Commission received 78,608 informal complaints in the fourth quarter of 2012, and staff processed over 13,000 inquiries.

²⁹⁸ See Testimony of Thomas Wheeler, Chairman, Federal Communications Commission, Before the Subcommittee on Communications and Technology Committee on Energy and Commerce, U.S. House of Representatives (Dec. 12, 2013) (Chairman Wheeler Dec. 12 Testimony), <http://www.fcc.gov/document/chairman-wheeler-fcc-oversight-hearing-statement>.

²⁹⁹ See, e.g., Public Knowledge Comments, GN Docket No. 13-5, at 12; Mich. PSC Comments, GN Docket No. 13-5, at 6-7.

Telephone Consumer Protection Act (TCPA).³⁰⁰ We seek comment on the categories the Commission could use to capture the consumer experience with the technology transitions.

179. While we are looking to enhance our consumer complaint and inquiry data, we emphasize that we will only do so in ways that will continue to protect the privacy of consumers. As discussed further below, we seek comment on any additional steps the Commission should take to ensure that consumer privacy is preserved as we improve our data intake, analysis and reporting.

2. Working with State, Local and Tribal Governments

180. A comprehensive picture of the consumer experience is essential to any assessment of a particular experiment and to the technology transitions generally.³⁰¹ Across the country, State, local and Tribal governments and leaders have their own processes in place to collect consumer complaint and inquiry data related to our nation's communication networks. In addition to working with the States, localities, and Tribal Nations to exchange consumer feedback as part of any experiment, we expect to work collaboratively with all of these entities in our affirmative efforts to gather consumer complaint and inquiry data. Coordination across all levels of government is a necessary aspect of creating a wide, open source of data with which to examine both experiments and the larger impacts of the transition.

181. We see State, local, and Tribal governments as partners in our efforts to enhance the available data on how consumers are experiencing technology transitions. The focus of our efforts will be to work within the contours of existing data collection authorities and efforts. Thus, we do not intend to suggest new State data collections efforts that could increase burdens on governmental entities, consumers, or industry sources. Rather, we seek opportunities to leverage existing data collection efforts across the States, localities, and Tribal Nations. In particular, we seek ways to develop common definitions, categories and metrics that will allow for comparisons of consumer experiences in different parts of the country and enable an aggregation of consumer data nationwide to create a more comprehensive picture of the consumer experience as networks transition.

182. Consistent with this goal, we will consult with and seek the input of the Federal-State Joint Conference on Advanced Telecommunications Services³⁰² to assist us with developing specific best practices among the States for gathering and evaluating consumer complaints about technology transitions. We expect that these best practices will allow us to build upon State experience and inform our own data collection and analysis work.

183. Some commenters note that the technology transitions may necessarily create a shift of consumer complaint processing from the State and local level to the federal level.³⁰³ For example, a number of States have passed laws limiting their State commissions from exercising authority over VoIP services.³⁰⁴ We share these commenters' concerns, and intend to ensure that, where States have no

³⁰⁰ 47 U.S.C. § 227.

³⁰¹ See, e.g., Mass. Dep't Telecomm. & Cable Comments, GN Docket No. 13-5, at 9-10; Mich. PSC Comments, GN Docket No. 13-5, at 5-7.

³⁰² See *Federal-State Joint Conference on Advanced Telecommunications Services*, Order, CC Docket No. 99-294, 14 FCC Rcd 17622 (1999).

³⁰³ See *supra* note 295.

³⁰⁴ See Sherry Lichtenberg, *Telecommunications Deregulation: Updating the Scorecard for 2013*, National Regulatory Research Institute iv (Apr. 2013) (reporting that "[t]wenty-five states had passed legislation eliminating or reducing state commission authority over telecommunications by the end of the 2012 legislative sessions" and that if the majority of 2013 legislation were enacted "nearly 70% of the country will have significantly reduced or eliminated commission jurisdiction over retail telecommunications services, including VoIP and other IP-enabled services"), <http://www.nrri.org/documents/317330/0e3a5988-6f57-492d-8ce5-70926cfe68f4>. Some States, such as Florida, have limited the ability of the State to address or even accept consumer complaints. See *id.* at 1.

remaining jurisdiction, such complaints can be addressed at the Commission level. We seek comment on how the Commission can best facilitate sharing of data about consumer complaints among the local, State, Tribal and federal levels.

3. Increasing the Transparency of the Consumer Data We Collect

184. Opening our consumer complaints and inquiries data to the public could have tremendous benefits. For example, we recognize that making this data publicly available may best enable a data-driven, “open data” evaluation of experiments. As the Commission undertakes its data analysis, that data also can be used by others to form independent evaluations and recommendations about the consumer experience. This approach is consistent with recent recommendations from our Consumer Advisory and Intergovernmental Affairs Committees.³⁰⁵ Opening the data can drive efficiencies, effectiveness, innovation, economic and social value and improvements in data quality.

185. We note that the Commission currently makes public quarterly reports on informal consumer complaints and consumer inquiries.³⁰⁶ We welcome thoughts on the level of specificity necessary in this reporting to enable meaningful analysis. As part of our ongoing effort to improve reporting, for example, we separated TCPA complaints from others in our reports.³⁰⁷ We are also examining other ways of improving reporting.³⁰⁸ We welcome ideas on new reporting categories and mechanisms that could more specifically address technology transitions issues. Likewise, we ask whether aggregated reporting of consumer feedback is appropriate or more specific complaint data, e.g., selected information from specific complaints, is necessary.

186. We also seek comment on how best to preserve consumer privacy in any reporting scheme. If the Commission considered making individual complaints and inquiries publicly available, does it raise significant privacy concerns? If so, what can the Commission do to mitigate these privacy concerns? Is the Commission’s Privacy Act statement with regard to informal complaint reporting adequate to address future privacy concerns or are added protections necessary?³⁰⁹ Should consumers submitting informal complaints be able to indicate whether all or part of their complaint could be made public or searchable?

187. As noted above, the CAC has recommended several changes to the Commission’s complaint data reporting.³¹⁰ These recommendations include: (1) adding a direct link to the Consumer Complaint data on the FCC home page; (2) allowing public access to complaint data in a machine-readable format that allows for filtering of information; (3) providing a more detailed breakdown of

³⁰⁵ See FCC Consumer Advisory Committee Recommendation Regarding Consumer Complaint Data Reporting (Dec. 16, 2013) (CAC Recommendation) (recommending, *inter alia*, that the Commission allow public access to complaint data); FCC Intergovernmental Advisory Committee Recommendation Regarding Access by State, Local, and Tribal Policymakers to Disaggregated Complaint Data at the FCC (July 11, 2013) (recommending that the Commission work cooperatively with State, local and Tribal policymakers to explore how it can provide such non-federal officials with full, on-line access to the Commission’s disaggregated complaint data) (IAC Recommendation).

³⁰⁶ FCC, Quarterly Reports – Consumer Inquiries and Complaints, <http://www.fcc.gov/encyclopedia/quarterly-reports-consumer-inquiries-and-complaints>.

³⁰⁷ See FCC Releases Quarterly Report of Consumer Inquiries and Informal Complaints for 2nd Quarter of 2013, News Release (Dec. 9, 2013), http://transition.fcc.gov/Daily_Releases/Daily_Business/2013/db1209/DOC-324594A1.pdf.

³⁰⁸ For example, the Commission is examining ways to streamline the consumer complaint process and create a searchable database that would enable us to analyze the data received more effectively. See Chairman Wheeler Dec. 12 Testimony, <http://www.fcc.gov/document/chairman-wheeler-fcc-oversight-hearing-statement>.

³⁰⁹ See FCC, Notice Required by the Privacy Act, <http://www.fcc.gov/encyclopedia/notice-required-privacy-act>.

³¹⁰ See *supra* note 305.

complaints in a narrative format when reporting; (4) sharing non-personally identifiable information consistent with the Freedom of Information Act; (5) developing processes to correct user self-selection errors and duplicate submission issues; (6) further separating out complaints and inquiries in reporting; (7) developing specific timelines for release of more detailed complaint information in a machine-readable format and allocating specific resources to achieve this goal; and, (8) providing reports on minority and disability community participation in the complaint database while taking steps to encourage participation amongst these communities.³¹¹ The CAC also recommends that the Commission review and consider the “accessibility and transparency of the Consumer Financial Protection Bureau’s complaint reporting efforts.”³¹² We seek comment on these proposals. Would implementing these proposals be conducive to our goals of transparency while adequately protecting consumer privacy? What resources may be needed to implement such proposals?

188. We agree with commenters who suggest that there is the potential for an observer effect, in which experimenters may improve their behavior in response to the knowledge that they are being observed.³¹³ We expect that our more general collection of consumer feedback on technology transitions will complement the data received from the experiments. We seek comment on other ways we might reduce the observer effect. Would more specific, transparent and publicly-available consumer complaint data facilitate accurate scrutiny and verification of reported information?

189. We also seek comment on how the Commission can supplement its data-gathering process on the impacts of technology transitions beyond consumer complaints and inquiries. In a data-driven, open data environment, we will embrace a multi-pronged approach to data gathering, collecting information from a wide variety of sources, including social media, news reports and other public sources. We may also consider additional data gathering tools, such as consumer surveys, automated measuring tools, and a “boots-on-the-ground” approach. We welcome ideas on the most efficient and effective ways to obtain consumer feedback.

C. NG911 Structured Observation

190. As discussed above, public safety is an enduring value of our nation’s communications networks. To measure the impact of technology transitions on public safety and the efficacy of emergency response, one important area of focus must be on the nation’s 911 infrastructure and the networks that support it. In the *Technology Transitions PN*, the Commission sought comment on a possible trial that would deploy an “all-IP” NG911 service on an accelerated basis in a number of geographic areas where public safety authorities are ready to deploy NG911 for one or more PSAPs.³¹⁴ While commenters generally supported the Commission’s goal to facilitate NG911 deployments, several commenters raised concerns about pursuing such a trial at this time.³¹⁵ Both industry and public safety stakeholders noted the many efforts already under way to develop and deploy NG911 platforms and cautioned that standards, many still in development, will be a prerequisite to NG911 implementation.³¹⁶

³¹¹ CAC Recommendation at 1-2.

³¹² *Id.* at 2.

³¹³ See *supra* note 296. As discussed above, we seek to ensure high-quality data in the experiments through the use of “control groups.” See *supra* para. 74.

³¹⁴ *Technology Transitions PN* at 6-8.

³¹⁵ See AT&T July 8, 2013 Comments, GN Docket No. 13-5, at 8 (stating that a trial would be premature as standards are still developing); Cbeyond et.al., Comments, GN Docket No. 13-5, at 4 (stating that the FCC should weigh the costs and benefits before proceeding with such a trial); Western Telecom Alliance Comments, GN Docket No. 13-5, at 4 (recommending the Commission hold off on NG911 trials); CTIA Comments, GN Docket No. 13-5, at 11-12 (stating that in considering trials, the Commission must account for the readiness of stakeholders).

³¹⁶ See, e.g., APCO Comments, GN Docket No. 13-5, at 3-4; ATIS Comments, GN Docket No. 13-5, at 7-9; AT&T July 8, 2013 Comments, GN Docket No. 13-5, at 27-29; State of Calif. Comments (Governor’s Office of Emergency

(continued....)

Nearly all commenters, however, emphasized that better data on such deployments – whether through an experiment or other information gathering efforts – would be valuable.³¹⁷ Thus, as a next step, we propose and seek comment on ways the Commission can collect and make available data outside of experiments to facilitate NG911 deployments while preserving and enhancing the enduring network value of public safety.

191. The experiments discussed above provide some opportunity to gather data on the impact of the technology transitions on existing 911 systems, as well as to track the migration from legacy circuit-switched 911 to IP-based NG911. To examine these transitions on a broader scale, however, we propose that the Commission take affirmative steps to gather information on NG911 deployment. Such data is critical to measuring performance and determining what impact the technology transitions will have on emergency communications. In addition, such data may also have a positive effect on the transition from legacy 911 to NG911. For example, the Commission has previously highlighted that identifying States that are “early adopters” of NG911 and tracking their implementation progress can be an important catalyst for other States and localities to begin the implementation process themselves.³¹⁸

192. Some data collection in this area is already under way. The National 911 Program, administered by the National Highway Traffic Safety Administration,³¹⁹ maintains a National 911 Profile Database that compiles data provided voluntarily by States on a basic set of 911/E911-related metrics, including information on State initiatives to deploy IP networks and NG911.³²⁰ The database contains aggregate data from States and provides a view into the national status of the nation’s 911 system technology and operations. Similarly, the National Emergency Number Association (NENA) has been monitoring the deployment of E911 by PSAPs since 2006, in particular, wireless 911 deployments and

(Continued from previous page)_____

Services), GN Docket No. 13-5, at 2; Intrado Comments, GN Docket No. 13-5, at 2; NENA Comments, GN Docket No. 13-5, at 4-5.

³¹⁷ See, e.g., Verizon Comments, GN Docket No. 13-5, at 6 (suggesting that as an alternative to a trial, the Commission could provide an NG911 “clearinghouse” function that provides useful information to various stakeholders); NENA Comments, GN Docket No. 13-5, at 9-10 (supporting development of a robust data set that provides actionable information, including lessons learned, to all stakeholders); Comcast Comments, GN Docket No. 13-5, at 8 (stating that information gleaned about NG911 deployments “could prove to be a particularly useful resource for individual originating service providers as they work to make the modifications to their networks that are needed to deploy NG911”); Intrado Comments, GN Docket No. 13-5, at 3 (stating that “[t]he benefits of a greenfield trial are in both the process of implementation and in the collection of real-time information”); L.R. Kimball Comments, GN Docket No. 13-5, at 2-3 (encouraging the Commission “to focus on projects that are already underway and identify common roadblocks that occurred in those projects” . . . “in order to provide timely recommendations to other areas”).

³¹⁸ Federal Communications Commission, Legal and Regulatory Framework for Next Generation 911 Services: Report to Congress and Recommendations 24 (Feb. 22, 2013), <http://www.fcc.gov/document/legal-and-regulatory-framework-ng911-services-report-congress>.

³¹⁹ The National 911 Program is housed within the Department of Transportation’s National Highway Traffic Safety Administration (NHTSA) Office of Emergency Medical Services. Its mission is “to provide Federal leadership in supporting and promoting optimal 911 services. See National 911 Program, Review of Nationwide 911 Data Collection (July 2013), <http://911.gov/pdf/Current911DataCollection-072613.pdf>.

³²⁰ National 911 Program, National 9-1-1 Profile Database, <http://resourcecenter.911.gov/code/9-1-1ProfileDatabase.aspx> (last visited Jan. 29, 2014).

capabilities,³²¹ and has developed a State NG911 Progress Map that tracks NG911 progress on a State-by-State basis.³²²

193. We seek to complement the data collection efforts of the National 911 Program and NENA by collecting data, on a voluntary basis, on NG911 progress from major commercial entities that are involved in NG911 implementation on a national scale, including carriers, 911 system service providers, and NG911 system vendors. Data collected from these entities can help the Commission and other key stakeholders to identify and better understand the technical, logistical, and policy interplay between the TDM-IP transition and the 911/E911-NG911 transition. For example, major vendors can provide information about planned or ongoing NG911 implementation projects in different States, localities, and Tribal lands and the types of systems and technology that are being implemented. We also hope, for example, to get a better sense of whether NG911 networks connect to carriers via IP-based or TDM-based legacy network gateways, and what services beyond voice (text, video, data) these deployments enable. Data collection could also encompass relevant State or local Requests for Information or Proposals, as well actual systems purchased and installed, e.g., contracts to build and deploy ESInets (emergency services IP networks), Geographic Information Systems (GIS), or to consolidate PSAP operations. Towards that end, we seek to institute an ongoing data collection that focuses on these information components. We intend to work closely with the National 911 Program and NENA to adopt a common definitional framework that will ensure consistency and complementarity across our respective data collections.

194. We seek comment on this proposal. What precise information should we collect from the vendor community? How can we best structure data submissions to address any confidentiality concerns? Are there specific concerns that we should take into account in our data requests related to technical and operational specifications of vendor equipment deployed for NG911 systems or proffered in response to State, local, or Tribal government requests for information or solicitations? How should the data be synthesized and presented to elicit lessons learned and/or best practices? Is there other information that vendors can provide on a regular basis that assist the Commission and other stakeholders in assessing the IP transition and the implementation of NG911?

D. Data Collections to Further our Understanding of Enduring Values

195. Beyond the experiments and these focused data collection initiatives, we undertake a broader, more comprehensive assessment of how we can best collect data to better understand the enduring values and how they are impacted by the technology transitions. We seek better information on key questions posed by the transition, including: (1) Where are we in the transitions? (2) How are the transitions affecting the core values? (3) What matters most to consumers and industry participants, and what trade-offs are most acceptable? We wish to assess what data we collect now, where there are gaps, and how we can best fill those gaps.

196. The Commission and other organizations have been measuring aspects related to the various facets of the technology transition for years. For example, the Commission collects data about broadband and voice connections twice a year on Form 477.³²³ The Commission's Measuring Broadband America project measures the actual performance of consumer residential and mobile broadband

³²¹ NENA, 9-1-1 National Deployment Status, <http://www.nena.org/?page=911DeploymentStatus> (last visited Jan. 29, 2014).

³²² NENA, Status of NG9-1-1 State Activity, http://www.nena.org/?NG911_StateActivity (last visited Jan. 29, 2014).

³²³ See *Local Competition and Broadband Reporting*, CC Docket No. 99-301, Report and Order, 15 FCC Rcd 7717, 7747, para. 59 (2000).

performance.³²⁴ The Centers for Disease Control (CDC) uses the National Health Interview Survey every six months to establish how many households or families use wireless, wireline or both for making phone calls.³²⁵ The Organization for Economic Co-operation and Development (OECD) and International Telecommunication Union (ITU) also publish related international data, usually based on national data collections. For example, the ITU gathers “Indicator 2,” the number of fixed telephone subscriptions.³²⁶ The Pew Research Center’s Internet and American Life project, among many other topics, investigates cell Internet use,³²⁷ home broadband demographics³²⁸ and smartphone ownership.³²⁹

197. However, these efforts are limited by focusing on one service or layer of the transition and often, on individual lines and subscriptions. The transition is characterized by multi-layered changes, e.g., both in physical access and information transport, and, unlike in the days of a single phone line for most households, households and families often use multiple communication modalities, including landline-based broadband technologies to shared and device-specific wireless. For example, a family or small business may have a fiber-based broadband Internet access service, distributed within the home by unlicensed wireless, but may also use multiple smart phones and feature phones, some with the ability to “tether” with tablet and laptop computers, and may use combinations of over-the-top VoIP applications, landline and wireless services for different purposes. This multiplicity affects the amount of competition, how much they spend on communication services overall, where voice and Internet service is available, and how members of the family can reach 911, among other factors.

198. Therefore, we intend to assess our existing data collection efforts and data sources and seek ways to obtain additional data that can help the Commission get better information about the technology transitions and our enduring values. To describe the kind of questions we believe to be helpful, we furnish a few illustrative examples.

- For wireless-only households, i.e., with no landline voice service, what fraction still uses DSL for broadband, i.e., depends on the local wired copper loop for Internet access?
- The CDC data illustrates that different demographic groups and regions of the country are “cutting the cord” at very different rates. Why do some consumers drop their landline voice service, while others continue to use both wireless and wireline voice?
- What is the impact of the technology transition on employment in the telecommunications sector, including skill distribution and income? Are there measurable impacts of the technology transition on economic efficiency and productivity?
- How important are specific features of landline service, such as choice of long-distance provider or 48 Volt central-office power, to different demographic groups and what kind of

³²⁴ See FCC, Measuring Broadband America, <http://www.fcc.gov/measuring-broadband-america> (last visited Jan. 14, 2014).

³²⁵ See, e.g., Stephen J. Blumberg & Julian V. Luk, Wireless Substitution: Early Releases Estimates from the National Health Interview Survey, January–June 2013 (Dec. 2013), <http://www.cdc.gov/nchs/data/nhis/earlyrelease/wireless201312.pdf>.

³²⁶ International Telecommunication Union, *Handbook for the Collection of Administrative Data on Telecommunications/ICT* (2011), <http://www.itu.int/en/ITU-D/Statistics/Pages/publications/handbook.aspx>.

³²⁷ Maeve Duggan and Aaron Smith, Cell Internet Use 2013, Pew Research Center (Sept. 16, 2013), <http://www.pewinternet.org/Reports/2013/Cell-Internet.aspx>.

³²⁸ Kathryn Zickuhr and Aaron Smith, Home Broadband 2013, Pew Research Center (Aug. 26, 2013), <http://www.pewinternet.org/Reports/2013/Broadband.aspx>.

³²⁹ Aaron Smith, Smartphone Ownership, Pew Research Center (June 5, 2013), <http://www.pewinternet.org/Reports/2013/Smartphone-Ownership-2013.aspx>.

economic value do consumers attach to these features? Who would benefit most from new services, such as video, real-time text or HD audio?

199. We are requesting interested parties to identify suitable sources of data that would allow us to reach beyond our current incomplete state of knowledge to identify important questions that can be answered by data and to work with us to obtain or derive the data. We welcome parties who have their own data relevant to the technology transitions to provide it, if they are willing to do so. We also ask parties to identify relevant data being collected elsewhere (by other government or non-government entities) that may address these issues. We are also interested in identifying opportunities for coordination with governmental and non-governmental entities doing their own data collection to see if there are ways that those third parties' data collections could be done in a way that would also produce data useful to us.

E. Impact of Technology Transitions on Healthcare

200. In the Rural HealthCare Broadband Experiment section of the Further Notice, we seek comment on experiments that focus on the implications of the technology transitions on health care facilities and their patients. Given the tremendous technological advancements impacting health care and telemedicine, we seek comment on data to help inform the Commission about the impact on health care facilities and their patients. Specifically, we seek comment and invite proposals that would promote partnerships with public and private stakeholders to gather and analyze data on the needs, implications, and impacts of the technology transitions on health care providers and their patients.

VI. FURTHER NOTICE OF PROPOSED RULEMAKING REGARDING NUMBERING RESEARCH (WC DOCKET NO. 13-97)³³⁰

201. As indicated by experts and commenters, there is an ongoing need for research into the future of telephone numbering. We propose funding telephone numbering research to support initiatives like the testbed described above and we seek comment on the appropriate budget and funding. For example, we expect funding to maintain the testbed to be quite modest (approximately \$100 per month for server resources), which could potentially be obtained from a number of sources, but technical staff resources may accelerate progress. The Commission requires the collection of numbering contributions associated with telephone numbering management that are used to fund the operation of numbering databases and services.³³¹ Should we use some of the revenue collected from these contributions to fund the testbed and related research? How would funding for such research be determined? What types of awards would be appropriate? Should the Commission seek NANC input on what research needs to be conducted? If so, what timeframe would be appropriate for obtaining input from the NANC? We seek comment on these issues. In addition to the testbed, should the Commission solicit other numbering-related research proposals? If so, what kind of research would be most helpful and how should the Commission facilitate such research?

VII. FURTHER NOTICE OF PROPOSED RULEMAKING (WC DOCKET NO. 10-90)³³²

202. In this Further Notice, we seek comment on a number of discrete issues relating to rural broadband experiments adopted above.

A. Budget for Rural Broadband Experiments

203. We intend to provide funding for experiments to extend modern networks in rural, high-cost areas without increasing the overall size of the universal service fund. The *USF/ICC Transformation*

³³⁰ We issue this Notice of Proposed Rulemaking in WC Docket No. 13-97.

³³¹ See 47 U.S.C. § 251(e); 47 C.F.R. § 52.17. See also North American Numbering Plan Billing and Collection Services, Frequently Asked Questions, <http://nanpfund.com/FAQs/FAQ.html> (last visited Jan. 15, 2014).

³³² We issue this Further Notice of Proposed Rulemaking in WC Docket No. 10-90.

Order directed USAC to collect \$4.5 billion annually for the Connect America Fund, and, to the extent disbursements in a given year are less than collections, deposit the excess in a broadband reserve account.³³³ Because annual disbursements have been less than \$4.5 billion to date, and funds have accumulated in the reserve account, a limited amount of funding could be awarded for experiments in 2014 from the reserve account without exceeding the overall \$4.5 billion annual budget for the Connect America Fund. We propose that a limited amount of these unallocated funds be made available for experiments in any part of the country, whether served by an incumbent price cap carrier or rate-of-return carrier. Utilizing these unallocated funds for rural experiments could serve multiple objectives: first, it would enable us to better design the final competitive bidding process that will be used nationwide to award support in price cap territories to the extent the price cap carrier declines to make a state-level commitment; second, it would enable us to provide funding for technology experiments across the country (not limited to areas where the incumbent provider is a price cap carrier), which will help inform future decisions regarding implementation of the Connect America Fund in areas where the incumbent is a rate-of-return carrier; and third, it would help us identify ways to use our various universal service programs together to attack in a coordinated fashion the challenges of universal access in rural America. We seek comment on this proposal.

204. According to USAC, the Connect America reserve account is projected to have an ending balance of \$1.68 billion as of the first quarter of 2014, with \$1.45 billion of those funds already allocated to Connect America Phase I (incremental support in round one and round two), the Mobility Fund Phase I, the Tribal Mobility Fund Phase I, and the Mobility Fund Phase II.³³⁴ We do not envision using all unallocated funds in the broadband reserve for experiments in rural areas, but rather an amount that is sufficient to enable us to award funding to a limited number of projects that enable evaluation of the four sets of interrelated questions identified above.³³⁵ Should we make available \$50 or \$100 million or some other amount in total support for experiments?³³⁶ Should we allocate a lesser or greater amount? Should we specifically allocate a separate amount for non-recurring support to be awarded on a competitive basis, in addition to recurring support, or merely a total amount that can be used in a variety of ways, depending on the applications received? Should we allocate a portion of the funds for Phase II experiments in price cap areas, and a separate amount for areas outside of price cap territories?

B. Experiments in Areas Where the Incumbent is a Rate-of-Return Carrier

205. In the *Order*, we conclude that we should entertain proposals to extend next generation networks in areas where the incumbent provider is a rate-of-return carrier. We do so with the intention to use experiments as a vehicle to consider how we might develop a longer term Connect America mechanism that would be appropriately designed to ensure that consumers, businesses, and anchor institutions in rate-of-return areas have access to innovative services delivered over high-capacity networks.

206. We remain firmly committed to the goal of ensuring that universal service support is utilized efficiently to preserve voice and extend broadband-capable networks in high-cost areas in rural America. As discussed in the *USF/ICC Transformation Order*, the Commission has taken steps to reform the universal service mechanisms that support rate-of-return carriers “to address the misaligned incentives” of the previous regime “by correcting program design flaws, extending successful safeguards,

³³³ *USF/ICC Transformation Order*, 26 FCC Rcd at 17847-48, paras. 559-563.

³³⁴ Universal Service Administrative Company, Federal Universal Service Fund Support Mechanisms Fund Size Projections for First Quarter 2014 at 9-12 (filed Nov. 1, 2013).

³³⁵ *See supra* paras. 94-97.

³³⁶ For instance, if the Commission were to allocate \$100 million in funding for trials, that could be provided as \$100 million in one-time support, or \$10 million in support over ten years, or \$20 million in support over five years, or some combination thereof.

ensuring basic fiscal responsibility, and closing loopholes to ensure our rules reward only prudent and efficient investment in modern networks.”³³⁷ While we continue to evaluate various proposals in the docket, we intend for rural broadband experiments in rate-of-return areas to provide us with valuable data that will help ensure that funds are disbursed efficiently and in the public interest in areas served by incumbent rate-of-return carriers.

207. We propose generally to apply the same application process and procedures adopted today for the Connect America Phase II experiment to the experiments in rate-of-return areas, recognizing that it may be appropriate to adopt an implementation schedule different than that used in price cap territories. In particular, we propose to use a two-stage application process for applications from entities wishing to participate in experiments to extend next generation networks in areas where the incumbent is a rate-of-return carrier. NTCA suggests that the Commission should provide incumbent rate-of-return carriers an initial window to submit applications for the experiment, in advance of soliciting applications from other parties, and also should allow the rate-of-return carrier to undertake the same deployment proposed by a non-incumbent for the same or a lesser amount of support.³³⁸ We seek comment on these proposals. If we were to adopt such a framework, how much time should be provided for the incumbent to indicate that it is willing to deploy broadband to the same geographic area for the same or a lesser amount of support as proposed by a non-incumbent applicant? Should we provide an opportunity, in turn, for the original applicant (the non-incumbent) to modify its proposal? Would the additional time and complexity of implementing such a process to make final and best offers be unwieldy in what is intended to be a short-term experiment in 2014?

208. Consistent with the approach adopted for experiments in price cap territories and previously implemented by the Commission for the second round of Connect America Phase I, we propose that experimental funding would only be made only for locations in high-cost census blocks lacking broadband, subject to a challenge process. We do not intend such experiments to threaten the financial viability of broadband networks that exist today through support from our existing high-cost mechanisms. Without prejudging where the funding threshold will ultimately be set for purposes of the offer of model-based support to price cap carriers, we encourage entities interested in proposing experiments in rate-of-return areas to focus their proposals on high-cost areas similar to those identified in the cost model as potentially eligible for the Phase II offer of model-based support to price cap carriers. We recognize that representatives of rate-of-return carriers have argued that adjustments would need to be made to the cost model before it could be used on a voluntary basis for any rate-of-return carrier that wished to elect to receive model-based support.³³⁹ Without prejudging the resolution of that question, could the model nonetheless be employed to identify potential areas where experiments in rate-of-return areas might be useful?

209. We propose to allow proposals in areas where the incumbent is a rate-of-return carrier to be made at the census block level in lieu of the census tract level in recognition that smaller providers may wish to develop proposals for smaller geographic areas.

210. We seek comment on all of these proposals. To the extent parties argue we should take a different approach in rate-of-return areas, they should identify with specificity what aspects of the experiments adopted for price cap areas should be modified and why.

³³⁷ *USF/ICC Transformation Order*, 26 FCC Rcd at 17769, para. 287.

³³⁸ See Letter from Michael R. Romano, Senior Vice President – Policy, NTCA, to Marlene H. Dortch, Secretary, Federal Communications Commission, WC Docket No. 10-90 et al., at 2 (filed Jan. 24, 2014); Letter from Michael R. Romano, Senior Vice President – Policy, NTCA, to Marlene H. Dortch, Secretary, Federal Communications Commission, WC Docket No. 10-90 et al., at 3 (filed Jan. 17, 2014).

³³⁹ Comments of NTCA – The Rural Broadband Association; the National Exchange Carrier Association, Inc.; the Western Telecommunications Alliance; and the Eastern Rural Telecom Association, WC Docket No. 10-90, at 11 (filed June 17, 2013).

C. Selective Criteria for Rural Broadband Experiments

211. A key objective in conducting these experiments is to determine whether there is interest in deploying robust, scalable networks for an amount equal to or less than model-based support. Here, we seek comment on the selective criteria for those experiments.

212. We seek comment below on potential selective factors and ask commenters to address how we might implement these selective factors as part of our objective process for selecting experiments. For example, should we adopt a 100 point scale? We also seek comment more generally on whether any selective factors should be added, deleted or modified.

213. We propose that cost effectiveness should be the primary criteria in evaluating which applications to select for the experiment. How should we measure cost effectiveness? One potential measure of cost effectiveness is whether the applicant proposes to serve an area for an amount less than model-based support. Are there other objective measures for cost-effectiveness that we should test in the experimental setting? If we were to adopt such a selective factor and a scoring system, how many points should be provided to applicants based on the cost effectiveness of their proposal? To the extent an applicant seeks one-time funding as opposed to recurring support, how should that be evaluated in the scoring system, as support amounts determined in the forward looking cost model are recurring amounts?

214. A second potential selective criteria is the extent to which the applicant proposes to build robust, scalable networks.³⁴⁰ In the *USF/ICC Transformation Order*, the Commission indicated it would initiate a proceeding in 2014 to review the performance requirements in order to ensure that Connect America continues to support broadband that is reasonably comparable to broadband services in urban areas.³⁴¹ We hope to gather valuable data in the rural broadband experiments regarding the extent of interest among stakeholders in building robust, scalable networks that will meet our goals for an evolving level of universal service. The Commission adopted an “initial minimum speed benchmark” for recipients of Connect America of 4 Mbps downstream/1 Mbps upstream, but it also specified that some number of locations would receive at least 6 Mbps downstream and at least 1.5 Mbps upstream by the end of the five-year term of Phase II.³⁴² If we were to adopt such a selective criteria, how much weight should be given to applicants that propose to offer services more robust than what the Commission established for price cap carriers accepting model-based support? Should we assign varying weights based on the percentage of locations in the proposed project areas that would receive services of varying speeds? Should we also assign additional weight for applicants that propose to offer service with unlimited usage or usage allowances significantly higher than established for the price cap carriers that accept model-based support? Should additional weight be assigned to applicants that commit to offering at least 100 Mbps service to schools with 1,000 students or more, with the ability to scale that to 1 gigabit service within several years, and comparable services to libraries?

215. A third potential criteria could be the extent to which applicants propose innovative strategies to leverage non-Federal governmental sources of funding, such as State, local, or Tribal government funding. We recognize the importance of a State, local or Tribal government commitment to advance universal service in partnership with the Commission. If we were to adopt this criteria, how much weight should be given to applications that leverage non-Federal governmental funding sources?

216. A fourth potential criteria could be whether applicants propose to offer high-capacity connectivity to Tribal lands. If we were to adopt this criteria, how much weight should be given to applications that propose to serve Tribal lands?

³⁴⁰ See, e.g., *USF/ICC Transformation Order*, 26 FCC Rcd at 17703-04, para. 107.

³⁴¹ *Id.* at 17703-04, para. 106.

³⁴² *Id.* at paras. 160, 162 (stating that “we expect ETCs to build robust, scalable networks that will provide speeds of at least 6 Mbps/1.5 Mbps to a number of supported locations”).

217. Finally, we seek more specific comment on how the mechanics of the scoring system would function. What role, if any, should there be for more subjective evaluations of the financial and technical qualifications of applicants, or of which proposals provide the best value for requested funding? For instance, should there be flexibility to deviate from the scoring system in order to achieve diversity of projects, both in terms of geography and types of technologies?

218. Relatedly, we seek comment on what information it may be useful to include in the formal proposals for rural broadband experiments, such as: the number of proposed residential and small business locations to be served within eligible census blocks in the relevant census tract; the number of health care providers, schools and libraries that are physically located within the eligible census blocks; whether the proposal includes the provision of service on Tribal lands and, if so, identification of the Tribal lands to be served; the planned service offerings that would be offered to residential and small businesses, and such anchor institutions, with details regarding the proposed speeds, latencies, usage allowance (if any), and pricing of such offerings;³⁴³ whether the services offered to residential consumers would be sufficiently robust to utilize advanced educational and health care applications; when such services would be available to consumers, businesses and such anchor institutions (the planned deployment schedule); whether the infrastructure can be upgraded later to offer greater throughput (i.e., speeds) and more capacity for each user at a given price point; how network speeds and other characteristics can be measured; whether any discounted services would be offered to specific populations, such as low-income households or customers on Tribal lands; proposed strategies for demand aggregation; proposed strategies for addressing barriers to adoption (e.g., whether the applicant proposes to offer digital literacy training or equipment to subscribers); whether and how other service providers can use the facilities constructed; availability and cost of backhaul and other assets required for project success; whether constraints in middle-mile connectivity may limit the services offered; whether the applicant plans to rely in part on financing from non-federal governmental institutions (e.g., State, regional, Tribal, or local funding; State universal service fund; private foundations); whether the applicant expects to have access to resources that will contribute to project success, such as in-kind contributions, access to cell towers, poles and rights of way, expedited permitting, or existing authorizations; information regarding the proposed network to be deployed and the technologies to be utilized (e.g., wireline, fixed wireless, or mobile wireless); how the applicant proposes to offer voice telephony service to customers at rates reasonably comparable to rates charged for similar services in urban areas; and the amount of Connect America support requested (total and per location) and the time period over which funding would be provided.

D. Additional Considerations for Rural Broadband Experiments

219. In the Order above, we make clear that the experiments will focus on areas where end users lack Internet access that delivers 3 Mbps downstream/768 kbps Mbps upstream. Here, we seek comment on specific measures to implement that objective. What specific numerical measure should be used to determine whether the extent of competitive overlap is de minimis? We recognize that unserved locations will not neatly align with census block or census tract boundaries. What measures should we take to ensure that federal funds are focused on bringing next generation networks to the unserved?

220. We expect that the amount of funding to be made available for any experiment will not exceed the amount of model-calculated support for a given geographic area. We seek comment on whether to limit the amount of support available in census tracts where the average cost per location is higher than the preliminary extremely high cost threshold to the amount per location equal to that preliminary extremely high cost threshold.

³⁴³ To the extent the applicant proposes to offer service of differing characteristics within the project area, it would be useful to specify the percentage of locations that would have access to the varying levels of service. For instance, if it proposes to deploy a network that would be capable of delivering speeds of 20 Mbps downstream to fifty percent of the locations in the project area, and at least 10 Mbps to the remaining locations, that could be spelled out in the application.

221. We seek comment on allowing applicants for funding awarded through this rural broadband experiment to propose to serve partially-served census blocks, which are not eligible for the offer of model-based support to price cap carriers. In adopting a framework for the Phase II challenge process, the Wireline Competition Bureau concluded, primarily for administrative reasons, that partially served blocks would not be included in the offer of model-based support, reasoning that the administrative burdens on both Commission staff and potential challenges of conducting sub-census block challenges outweighed the marginal benefits.³⁴⁴ That was a reasonable approach for determining whether the incumbent would receive the opportunity to receive model-based support in exchange for a state-level commitment, given the assumption that areas not served by price cap carriers through the offer of model-based support potentially could be eligible for support through the Phase II competitive bidding process.³⁴⁵ We believe it could be valuable to examine on a limited scale, in the Phase II experiment, whether the administrative difficulties of entertaining challenges to the eligibility of partially served census blocks could be mitigated by doing such challenges only if a partially served census block is tentatively awarded funding (rather than in advance of selection). Such an approach could advance our goal of ensuring that all consumers, businesses and anchor institutions – including those that currently lack service in these partially served census blocks – will have an opportunity to gain broadband access in the future.

222. We seek comment on any additional rules or requirements we should adopt in the context of rural broadband experiments. For instance, should a condition of participation be offering discounted broadband services to low-income consumers? For applicants whose service areas include Tribal lands, should a condition of participation be offering service to residents and anchor institutions on Tribal lands? Should a condition of participation be to offer to connect community-based institutions, such as schools, libraries, and health care providers, within the project area with high-capacity services appropriate for educational or healthcare activities? To the extent an applicant fails to meet the conditions of its experiment, should facilities built using universal service funding be made available to others? We ask commenters to refresh the record on issues relating to the ETC designation process.³⁴⁶ Should we adopt federal rules regarding the ETC designation process specifically for the rural broadband experiments? For instance, should we adopt a presumption that if a State fails to act on an ETC application from a selected participant within a specified period of time, such as 60 days, the State lacks jurisdiction over the applicant, and the Commission will address the ETC application pursuant to section 214(e)(6)? We also seek comment on whether and how the competitive bidding requirements and other rules applicable to participants and vendors in other universal service programs should apply in the context of these experiments, to the extent an applicant seeks to offer services to schools, libraries, and/or health care providers, as well as to residential end users.³⁴⁷ Are there other issues discussed above in the service experiments section that should be addressed in the context of these experiments in rural, high-cost areas, and if so, how?

223. To the extent Connect America Phase II funding is awarded in the experiment prior to the offer of model-based support to price cap carriers, should we direct the Bureau to adjust the offer of support for a state-level commitment to remove those areas from the offer?³⁴⁸ In such situations, should

³⁴⁴ *Phase II Challenge Order*, 28 FCC Rcd at 7220, para. 22.

³⁴⁵ In the *USF/ICC Transformation FNPRM*, the Commission sought comment on which areas should be eligible for the competitive bidding process, thus leaving open the possibility that partially served census blocks could be addressed in the competitive bidding process. *USF/ICC Transformation FNPRM*, 26 FCC Rcd at 18085-86, paras. 1191-93.

³⁴⁶ *USF/ICC Transformation FNPRM*, 26 FCC Rcd at 18062-66, paras. 1089-1103.

³⁴⁷ See, e.g., 47 C.F.R. §§ 54.503, 54.603, 54.642.

³⁴⁸ This would not require re-running the cost model to calculate the final list of eligible census blocks. Rather, to the extent certain census blocks are no longer eligible, the Bureau could adjust the extremely high cost threshold to

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the incumbent price cap carrier be relieved of its federal ETC high-cost obligations for the area when support is awarded to another entity? We note that the carrier would still be required to comply with current notice requirements, including notice of discontinuance and notice of network change requirements.³⁴⁹ Similarly, should areas served by experiments be excluded from the Phase II competitive bidding process? How does the potential difference in duration, or other aspects, of proposals selected for the experiment impact any decision to exclude such areas from the general Phase II competitive bidding process?

E. Rural Healthcare Broadband Experiments

224. In this section, we seek comment on soliciting experiments that focus on ensuring that consumers have access to advanced services to address the increased and growing demand for telemedicine and remote monitoring. The Commission has a role in ensuring universal access to advanced telecommunications and information services. Historically, the Commission's high-cost program has focused on providing support to providers for the cost of deploying and operating networks in high-cost areas. In the Order above, we invite experiments that would explore how to achieve the goals and requirements adopted in the *USF/ICC Transformation Order* to use the Connect America Fund to tackle the challenges of universal access in rural areas. Here, we seek comment more broadly on consumer-oriented rural broadband experiments that would improve patient access to health care.

225. When the Commission adopted the Healthcare Connect Fund in 2012, it sought to advance several goals for the rural healthcare program: (1) increasing access to broadband for health care providers (HCPs), particularly those serving rural areas; (2) fostering the development and deployment of broadband health care networks, and (3) maximizing the cost-effectiveness of the program.³⁵⁰ It also set aside up to \$50 million to conduct a pilot program to test expanded access to telemedicine at skilled nursing facilities.³⁵¹ We seek comment on experiments that focus on the implications of the technology transition on health care facilities and their patients. We seek comment on conducting experiments that would explore how to improve access to advanced telecommunications and information services for healthcare for vulnerable populations such as the elderly and veterans in rural, high-cost, and insular areas. For example, technological advances hold great promise to enable the elderly to age in place, in their home, with remote monitoring of key health statistics through a broadband-enabled device. Likewise, the Department of Veteran Affairs has implemented a telehealth initiative which has reduced the number of days spent in the hospital by 59 percent, and hospital admissions by 35 percent for veterans across the country, saving over \$2000 per year per patient, including even when factoring in the costs of the program.³⁵² These programs are critical to achieving savings in healthcare costs, and reducing the amount of time patients are away from home, but a critical gap remains in ensuring that patients, such as

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make additional census blocks eligible, given the Phase II budget, without disturbing the list of otherwise eligible census blocks.

³⁴⁹ See 47 U.S.C. § 214; 47 C.F.R. §§ 51.325-35, 63.63, 63.71.

³⁵⁰ See *Healthcare Connect Fund Order*, 27 FCC Rcd at 16682, para. 8.

³⁵¹ We direct the Wireline Competition Bureau to refrain from implementing the skilled nursing facility (SNF) Pilot Program until the Commission determines whether to use a portion of the \$50 million currently authorized for the SNF Pilot for purposes of supporting healthcare broadband experiments in this proceeding. See *id.* at 16817, para. 348 (delegating authority to the Bureau to develop an application process for the SNF Pilot). We instruct the Bureau to issue a Public Notice in the rural health care docket (where the SNF Pilot was created), WC Docket No. 02-60, to inform interested parties that the Bureau is deferring its implementation of the SNF Pilot pending the Commission's consideration of the healthcare-related proposals included in this proceeding.

³⁵² Hayley Tsukayama, High-tech upgrades may let aging boomers live independently in their own homes longer, Wash. Post, Jan. 20, 2014, http://www.washingtonpost.com/business/technology/hi-tech-upgrades-may-let-aging-baby-boomers-live-independently-in-their-own-homes-longer/2014/01/20/72e3d3b8-759f-11e3-8b3f-b1666705ca3b_story.html.

the elderly and veterans, have access to sufficient connectivity at home to transmit the necessary data for telemedicine applications such as remote health care monitoring, to enable patients to access the health care provider's patient portal, and for other broadband-enabled health care applications.

226. Consistent with the decision in the *USF/ICC Transformation Order* to connect all areas, including homes, businesses and anchor institutions – which the Commission defined as schools, libraries, medical and healthcare providers, public safety entities, community colleges and other institutions of higher education, and other community support organizations and agencies that provide outreach, access, equipment, and support services to facilitate greater use of broadband service by vulnerable populations, including low-income, the unemployed, and the aged – we seek comment on conducting an experiment to support broadband connections to the consumer for discrete rural populations, such as the elderly or veterans, to enable their participation in telehealth initiatives. One example would be a project that seeks to explore how the Connect America Fund can be targeted to work with other federal initiatives to serve the needs of particular populations, such as ensuring adequate health care for veterans in rural America. Another example would be a project that seeks to explore how to use the Connect America Fund to extend broadband to surrounding rural communities that lack residential broadband service.

227. We seek comment on the amount of funding we should allocate for such experiments. If we move forward with rural healthcare broadband experiments, we propose to do so in a manner that would not impact the size of the Fund. Specifically, we propose funding any such experiments out of the \$50 million currently authorized for the skilled nursing facility pilot program. The Commission has previously decided to set aside that amount of one-time support for testing broadband use in telemedicine.³⁵³ We seek comment on this proposal and other options that would not impact the size of the Fund, such as funding coming from the existing Connect America Fund budget or the rural health care mechanism.

228. We propose generally to use the application process described above for the Connect America rural broadband experiments for any healthcare experiments. To the extent parties suggest we use different processes for a healthcare experiment, they should identify with specificity which aspects of the process should be modified and why.

229. We seek comment on the specific selective criteria for a healthcare broadband experiment. How many projects should be funded, and how should applications be prioritized? What auditing and recordkeeping measures should be in place for any such experiment to protect against waste, fraud and abuse? Are there specific ways in which the Commission's experience with the successful Rural Health Care Pilot Program or other universal service pilot programs which should be reflected in the evaluation of proposals or the operation of the experiments? Are there requirements under the existing rural health care mechanism (either the Telecommunications Program or the new Healthcare Connect Fund), or other universal service programs, that would be implicated by such experiments? If so, commenters should identify those rules with specificity and indicate how experiments would need to be tailored to such rules, or explain whether and how those rules should be waived or modified.

230. Finally, we seek comment on how these experiments might be implemented consistent with our legal authority. Following the Telecommunications Act of 1996, the Commission implemented the directives in section 254 by adopting rules to administer universal service through four separate programs, but nothing in the statutory framework requires this result. Sections 254(b)(2) and 254(b)(3) require the Commission to “base policies on the preservation and advancement of universal service” on “principles” that “[a]ccess to advanced telecommunications and information services should be provided in all regions of the Nation” and that “[c]onsumers in all regions of the Nation, including low-income consumers and those in rural, insular, and high cost areas should have access to ... advanced telecommunications and information services ... that are reasonably comparable to services provided in

³⁵³ *Healthcare Connect Fund Order*, 27 FCC Rcd at 16817, para. 347.

urban areas.”³⁵⁴ Section 254(h)(1) contains specific provisions for “health care providers in rural areas” and section 254(h)(2) requires the Commission “to establish competitively neutral rules to enhance ... access to advanced telecommunications services and information services for all... health care providers.”³⁵⁵ We seek comment on the Commission’s legal authority to interpret section 254 to fund experiments that focus on providing advanced telecommunications and information services to consumers in rural areas, with a particular focus deploying broadband that is sufficient to meet consumers’ healthcare needs. We also seek comment on experiments that would provide support to health care providers.

VIII. PROCEDURAL MATTERS

A. Order in GN Docket Nos. 13-5 and 12-353

1. *Ex Parte* Presentations

231. The proceeding this Notice initiates shall be treated as a “permit-but-disclose” proceeding in accordance with the Commission’s *ex parte* rules.³⁵⁶ Persons making *ex parte* presentations must file a copy of any written presentation or a memorandum summarizing any oral presentation within two business days after the presentation (unless a different deadline applicable to the Sunshine period applies). Persons making oral *ex parte* presentations are reminded that memoranda summarizing the presentation must (1) list all persons attending or otherwise participating in the meeting at which the *ex parte* presentation was made, and (2) summarize all data presented and arguments made during the presentation. If the presentation consisted in whole or in part of the presentation of data or arguments already reflected in the presenter’s written comments, memoranda or other filings in the proceeding, the presenter may provide citations to such data or arguments in his or her prior comments, memoranda, or other filings (specifying the relevant page and/or paragraph numbers where such data or arguments can be found) in lieu of summarizing them in the memorandum. Documents shown or given to Commission staff during *ex parte* meetings are deemed to be written *ex parte* presentations and must be filed consistent with rule 1.1206(b). In proceedings governed by rule 1.49(f) or for which the Commission has made available a method of electronic filing, written *ex parte* presentations and memoranda summarizing oral *ex parte* presentations, and all attachments thereto, must be filed through the electronic comment filing system available for that proceeding, and must be filed in their native format (e.g., .doc, .xml, .ppt, searchable .pdf). Participants in this proceeding should familiarize themselves with the Commission’s *ex parte* rules.

2. Filing Instructions

232. Because of the speedy timeline to initiate the service-based experiments and to receive and evaluate comments, **we require that all proposals for service-based experiments be filed electronically.**³⁵⁷ This will provide a streamlined process to make all proposals quickly publicly accessible.³⁵⁸ **Comments and replies on any service-based experiments, or other submissions from**

³⁵⁴ 47 U.S.C. §§ 254(b)(2) & (3).

³⁵⁵ 47 U.S.C. §§ 254(h)(1) & (2).

³⁵⁶ 47 C.F.R. §§ 1.1200 *et seq.*

³⁵⁷ Experiment proposals that are submitted on paper will not necessarily be considered according to the timeframe set forth above. *See supra* para. 81.

³⁵⁸ We note that the Commission requires a number of filings to be submitted electronically. *See, e.g., Modernizing the E-rate Program for Schools and Libraries*, WC Docket No. 13-184, Notice of Proposed Rulemaking, 28 FCC Rcd 11304, 11363 (2013), para. 227 (explaining that E-rate applicants must file all documents electronically in order to manage applications more quickly and efficiently); *Wireless Telecommunications Bureau Reminds Filers of Effective Date for Mandatory Electronic Filing of FCC Form 602*, Public Notice, 17 FCC Rcd 22934 (2002) (explaining that electronic filing of FCC Form 602 via ULS became mandatory beginning December 10, 2002); 47 C.F.R. § 73.3526(e)(11)(iii) (requiring each commercial television licensee to electronically file a quarterly Children’s Television Programming Report (FCC Form 398)); 47 C.F.R. § 73.3526(e)(11)(iv) (requiring full-power

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interested persons, may be filed on paper or electronically. All submissions must reference GN Docket No. 13-5. To the extent consistent with the instructions of this paragraph, submissions may be filed using: (1) the Commission's Electronic Comment Filing System (ECFS) or (2) by filing paper copies.³⁵⁹

233. Pursuant to sections 1.415 and 1.419 of the Commission's rules, 47 CFR §§ 1.415, 1.419, interested parties may file comments and reply comments on or before the dates indicated on the first page of this document. Comments may be filed using the Commission's Electronic Comment Filing System (ECFS). *See Electronic Filing of Documents in Rulemaking Proceedings*, 63 FR 24121 (1998).

- Electronic Filers: Comments may be filed electronically using the Internet by accessing the ECFS: <http://fjallfoss.fcc.gov/ecfs2/>.
- Paper Filers: Parties who choose to file by paper must file an original and one copy of each filing. If more than one docket or rulemaking number appears in the caption of this proceeding, filers must submit two additional copies for each additional docket or rulemaking number.

Filings can be sent by hand or messenger delivery, by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail. All filings must be addressed to the Commission's Secretary, Office of the Secretary, Federal Communications Commission.

- All hand-delivered or messenger-delivered paper filings for the Commission's Secretary must be delivered to FCC Headquarters at 445 12th St., SW, Room TW-A325, Washington, DC 20554. The filing hours are 8:00 a.m. to 7:00 p.m. All hand deliveries must be held together with rubber bands or fasteners. Any envelopes and boxes must be disposed of before entering the building.
- Commercial overnight mail (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9300 East Hampton Drive, Capitol Heights, MD 20743.
- U.S. Postal Service first-class, Express, and Priority mail must be addressed to 445 12th Street, SW, Washington DC 20554.

People with Disabilities: To request materials in accessible formats for people with disabilities (braille, large print, electronic files, audio format), send an e-mail to fcc504@fcc.gov or call the Consumer & Governmental Affairs Bureau at 202-418-0530 (voice), 202-418-0432 (tty).

234. For further information, contact Tim Stelzig, Deputy Chief, Competition Policy Division, Wireline Competition Bureau, at Tim.Stelzig@fcc.gov, or at 202-418-0942.

B. Report and Order and Further Notice of Proposed Rulemaking in WC Docket No. 10-90

1. Paperwork Reduction Analysis

235. The Report and Order contains modified information collection requirements subject to the Paperwork Reduction Act of 1995 (PRA), Public Law 104-13. It will be submitted to the Office of Management and Budget (OMB) for review under Section 3507(d) of the PRA. OMB, the general public, and other Federal agencies are invited to comment on the new or modified information collection

(Continued from previous page)_____ commercial TV broadcast stations to electronically file a quarterly DTV Consumer Education Quarterly Activity Report (Form 388)); 47 C.F.R. § 63.03(a) (requiring that all comments on streamlined Section 214 applications be filed electronically).

³⁵⁹ See *supra* Part VIII.A.

requirements contained in this proceeding. In addition, we note that pursuant to the Small Business Paperwork Relief Act of 2002, Public Law 107-198, *see* 44 U.S.C. 3506(c)(4), we previously sought specific comment on how the Commission might further reduce the information collection burden for small business concerns with fewer than 25 employees.

236. In this present document, we have assessed the effects of modifying reporting rules, and find that doing so does not change the burden on small businesses with fewer than 25 employees.

237. The Further Notice of Proposed Rulemaking does not contain proposed information collection requirements subject to the Paperwork Reduction Act of 1995, Public Law 104-13. In addition, therefore, it does not contain any proposed information collection burden for small business concerns with fewer than 25 employees, pursuant to the Small Business Paperwork Relief Act of 2002, Public Law 107-198, *see* 44 U.S.C. 3506(c)(4).

2. Congressional Review Act

238. The Commission will send a copy of this Report and Order and Further Notice of Proposed Rulemaking to Congress and the Government Accountability Office pursuant to the Congressional Review Act.³⁶⁰

3. Initial Regulatory Flexibility Analysis

239. The *USF/ICC Transformation Order and FNPRM* included an Initial Regulatory Flexibility Analysis (IRFA) pursuant to 5 U.S.C. § 603, exploring the potential impact on small entities of the Commission's proposal.³⁶¹ We invite parties to file comments on the IRFA in light of this additional notice.

4. Final Regulatory Flexibility Certification

240. The Regulatory Flexibility Act (RFA)³⁶² requires that agencies prepare a regulatory flexibility analysis for notice-and-comment rulemaking proceedings, unless the agency certifies that "the rule will not have a significant economic impact on a substantial number of small entities."³⁶³ The RFA generally defines "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction."³⁶⁴ In addition, the term "small business" has the same meaning as the term "small business concern" under the Small Business Act.³⁶⁵ A small business concern is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the SBA.³⁶⁶

³⁶⁰ *See* 5 U.S.C. § 801(a)(1)(A).

³⁶¹ *USF/ICC Transformation Order and FNPRM*, 26 FCC Rcd at 18364-95, App. P; *see also* 76 Fed. Reg. 78384, 78430-42 (2011).

³⁶² *See* 5 U.S.C. § 601 *et seq.* The RFA has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121, Title II, 110 Stat. 857.

³⁶³ 5 U.S.C. § 605(b).

³⁶⁴ 5 U.S.C. § 601(6).

³⁶⁵ 5 U.S.C. § 601(3) (incorporating by reference the definition of "small business concern" in the Small Business Act, 15 U.S.C. § 632). Pursuant to 5 U.S.C. § 601(3), the statutory definition of a small business applies "unless an agency, after consultation with the Office of Advocacy of the Small Business Administration (SBA) and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register."

³⁶⁶ Small Business Act, 15 U.S.C. § 632.

241. This Report and Order codifies rules adopted by the Commission in *USF/ICC Transformation Order*.³⁶⁷ This action does not create any burdens, benefits, or requirements that were not addressed by the Final Regulatory Flexibility Analysis attached to *USF/ICC Transformation Order*.³⁶⁸ Therefore, we certify that the action taken in this Report and Order will not have a significant economic impact on a substantial number of small entities. The Commission will send a copy of the Order, including a copy of this final certification, in a report to Congress pursuant to SBREFA.³⁶⁹ In addition, the Report and Order and this certification will be sent to the Chief Counsel for Advocacy of the SBA, and will be published in the Federal Register.³⁷⁰

5. *Ex Parte* Presentations

242. The proceeding this Notice initiates shall be treated as a “permit-but-disclose” proceeding in accordance with the Commission’s *ex parte* rules.³⁷¹ Persons making *ex parte* presentations must file a copy of any written presentation or a memorandum summarizing any oral presentation within two business days after the presentation (unless a different deadline applicable to the Sunshine period applies). Persons making oral *ex parte* presentations are reminded that memoranda summarizing the presentation must (1) list all persons attending or otherwise participating in the meeting at which the *ex parte* presentation was made, and (2) summarize all data presented and arguments made during the presentation. If the presentation consisted in whole or in part of the presentation of data or arguments already reflected in the presenter’s written comments, memoranda or other filings in the proceeding, the presenter may provide citations to such data or arguments in his or her prior comments, memoranda, or other filings (specifying the relevant page and/or paragraph numbers where such data or arguments can be found) in lieu of summarizing them in the memorandum. Documents shown or given to Commission staff during *ex parte* meetings are deemed to be written *ex parte* presentations and must be filed consistent with rule 1.1206(b). In proceedings governed by rule 1.49(f) or for which the Commission has made available a method of electronic filing, written *ex parte* presentations and memoranda summarizing oral *ex parte* presentations, and all attachments thereto, must be filed through the electronic comment filing system available for that proceeding, and must be filed in their native format (e.g., .doc, .xml, .ppt, searchable .pdf). Participants in this proceeding should familiarize themselves with the Commission’s *ex parte* rules.

6. Filing Instructions

243. Pursuant to sections 1.415 and 1.419 of the Commission’s rules, 47 CFR §§ 1.415, 1.419, interested parties may file comments and reply comments on or before the dates indicated on the first page of this document. Comments may be filed using the Commission’s Electronic Comment Filing System (ECFS). *See Electronic Filing of Documents in Rulemaking Proceedings*, 63 FR 24121 (1998).

- Electronic Filers: Comments may be filed electronically using the Internet by accessing the ECFS: <http://fjallfoss.fcc.gov/ecfs2/>.
- Paper Filers: Parties who choose to file by paper must file an original and one copy of each filing. If more than one docket or rulemaking number appears in the caption of this proceeding, filers must submit two additional copies for each additional docket or rulemaking number.

³⁶⁷ See *USF/ICC Transformation Order*, 26 FCC Rcd at 17716-22, paras. 136-47.

³⁶⁸ See *id.* at 18324-63, App. O.

³⁶⁹ See 5 U.S.C. § 801(a)(1)(A).

³⁷⁰ See 5 U.S.C. § 605(b).

³⁷¹ 47 C.F.R. §§ 1.1200 *et seq.*

Filings can be sent by hand or messenger delivery, by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail. All filings must be addressed to the Commission's Secretary, Office of the Secretary, Federal Communications Commission.

- All hand-delivered or messenger-delivered paper filings for the Commission's Secretary must be delivered to FCC Headquarters at 445 12th St., SW, Room TW-A325, Washington, DC 20554. The filing hours are 8:00 a.m. to 7:00 p.m. All hand deliveries must be held together with rubber bands or fasteners. Any envelopes and boxes must be disposed of before entering the building.
- Commercial overnight mail (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9300 East Hampton Drive, Capitol Heights, MD 20743.
- U.S. Postal Service first-class, Express, and Priority mail must be addressed to 445 12th Street, SW, Washington DC 20554.
- People with Disabilities: To request materials in accessible formats for people with disabilities (braille, large print, electronic files, audio format), send an e-mail to fcc504@fcc.gov or call the Consumer & Governmental Affairs Bureau at 202-418-0530 (voice), 202-418-0432 (tty).

For further information, contact Alexander Minard, Acting Deputy Chief, Telecommunications Access Policy Division, Wireline Competition Bureau, at Alexander.Minard@fcc.gov, or at 202-418-0428.

C. Report and Order in CG Docket Nos. 10-51 and 03-123

1. Paperwork Reduction Analysis

244. The rules contained herein have been analyzed with respect to the Paperwork Reduction Act of 1995 and found to contain no new or modified form, information collection, and/or recordkeeping, labeling, disclosure, or record retention requirements, and will not increase or decrease burden hours imposed on the public.³⁷² In addition, therefore, this Order does not contain any new or modified "information collection burden for small business concerns with fewer than 25 employees," pursuant to the Small Business Paperwork Relief Act of 2002.³⁷³

2. Congressional Review Act

245. The Commission will send a copy of this Report and Order to Congress and the Government Accountability Office pursuant to the Congressional Review Act.³⁷⁴

3. Final Regulatory Flexibility Certification

246. The Regulatory Flexibility Act (RFA)³⁷⁵ requires that agencies prepare a regulatory flexibility analysis for notice-and-comment rulemaking proceedings, unless the agency certifies that "the rule will not have a significant economic impact on a substantial number of small entities."³⁷⁶ The RFA generally defines "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction."³⁷⁷ In addition, the term "small business" has the

³⁷² See Pub. L. No. 104-13, 44 U.S.C. §§3501, *et seq.*

³⁷³ See Pub. L. No. 107-198, 44 U.S.C. § 3506(c)(4).

³⁷⁴ See 5 U.S.C. § 801(a)(1)(A).

³⁷⁵ See 5 U.S.C. § 601 *et seq.* The RFA has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121, Title II, 110 Stat. 857.

³⁷⁶ 5 U.S.C. § 605(b).

³⁷⁷ 5 U.S.C. § 601(6).

same meaning as the term “small business concern” under the Small Business Act.³⁷⁸ A small business concern is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the SBA.³⁷⁹

247. This document waives any limitation in the *VRS Reform Order* to make clear that the Managing Director may enter into arrangements with other than the National Science Foundation, and provides guidance on the funding mechanism to be employed by the Managing Director in selecting research projects, and establishes an initial budget for R&D projects [funded through the TRS Fund]. These actions do not create any burdens, benefits, or requirements that were not addressed by the Final Regulatory Flexibility Analysis attached to the *VRS Reform Order*.³⁸⁰ Therefore, we certify that the requirements adopted in this Report and Order will not have a significant economic impact on a substantial number of small entities. The Commission will send a copy of the Report and Order, including a copy of this final certification, in a report to Congress pursuant to SBREFA.³⁸¹ In addition, the Report and Order and this certification will be sent to the Chief Counsel for Advocacy of the SBA, and will be published in the Federal Register.³⁸²

D. Order and Further Notice of Proposed Rulemaking in WC Docket No. 13-97

1. Paperwork Reduction Act

248. This Further Notice of Proposed Rulemaking does not contain new or modified information collection requirements subject to the Paperwork Reduction Act of 1995 (PRA), Public Law 104-13. In addition, therefore, it does not contain any new or modified information collection burden for small business concerns with fewer than 25 employees, pursuant to the Small Business Paperwork Relief Act of 2002, Public Law 107-198, *see* 44 U.S.C. 3506(c)(4).

2. Initial Regulatory Flexibility Certification

249. The Regulatory Flexibility Act of 1980, as amended (RFA),³⁸³ requires that agencies prepare a regulatory flexibility analysis for notice-and-comment rulemaking proceedings, unless the agency certifies that “the rule will not have a significant economic impact on a substantial number of small entities.”³⁸⁴ The RFA generally defines “small entity” as having the same meaning as the terms “small business,” “small organization,” and “small governmental jurisdiction.”³⁸⁵ In addition, the term “small business” has the same meaning as the term “small business concern” under the Small Business Act.³⁸⁶ A small business concern is one which: (1) is independently owned and operated; (2) is not

³⁷⁸ 5 U.S.C. § 601(3) (incorporating by reference the definition of “small business concern” in the Small Business Act, 15 U.S.C. § 632). Pursuant to 5 U.S.C. § 601(3), the statutory definition of a small business applies “unless an agency, after consultation with the Office of Advocacy of the Small Business Administration (SBA) and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register.”

³⁷⁹ Small Business Act, 15 U.S.C. § 632.

³⁸⁰ *See VRS Reform Order*, 28 FCC Rcd at 8753, App. B.

³⁸¹ *See* 5 U.S.C. § 801(a)(1)(A).

³⁸² *See* 5 U.S.C. § 605(b).

³⁸³ The RFA, *see* 5 U.S.C. § 601 *et seq.*, has been amended by the Contract With America Advancement Act of 1996, Pub. L. No. 104-121, 110 Stat. 847 (1996) (CWAAA). Title II of the CWAAA is the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA).

³⁸⁴ 5 U.S.C. § 605(b).

³⁸⁵ 5 U.S.C. § 601(6).

³⁸⁶ 5 U.S.C. § 601(3) (incorporating by reference the definition of “small business concern” in Small Business Act, 15 U.S.C. § 632). Pursuant to 5 U.S.C. § 601(3), the statutory definition of a small business applies “unless an

(continued....)

dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (SBA).³⁸⁷

250. In this Further Notice of Proposed Rulemaking, the Commission states that there is an ongoing need for research into the future of telephone numbering, proposes funding telephone numbering research to support initiatives like the testbed described in the Order in WC Docket No. 13-97 described above, and seeks comment on the appropriate budget and funding. The Commission notes that it expects the funding to maintain the testbed to be quite modest (approximately \$100 per month) for server resources, that it could potentially be funded by contributions already collected in association with telephone numbering management, and seeks comment on this. The Commission seeks comment on how funding for such research should be determined, the types of awards that would be appropriate, whether the Commission should seek NANC input on what research needs to be conducted, and the timeframe for any such input from NANC. This Further Notice of Proposed Rulemaking only seeks comment on funding and budget for research and development projects and does not propose new rules, burdens, or requirements.

251. The Commission therefore certifies, pursuant to the RFA, that the proposals in this Notice of Proposed Rulemaking, if adopted, will not have a significant economic impact on a substantial number of small entities. If commenters believe that the proposals discussed in this Notice of Proposed Rulemaking require additional RFA analysis, they should include a discussion of these issues in their comments and additionally label them as RFA comments. The Commission will send a copy of this Notice of Proposed Rulemaking, including a copy of this initial regulatory flexibility certification, to the Chief Counsel for Advocacy of the SBA.³⁸⁸ In addition, a copy of this Notice of Proposed Rulemaking and this initial certification will be published in the Federal Register.³⁸⁹

3. *Ex Parte* Presentations

252. The proceeding this Notice initiates shall be treated as a “permit-but-disclose” proceeding in accordance with the Commission’s *ex parte* rules.³⁹⁰ Persons making *ex parte* presentations must file a copy of any written presentation or a memorandum summarizing any oral presentation within two business days after the presentation (unless a different deadline applicable to the Sunshine period applies). Persons making oral *ex parte* presentations are reminded that memoranda summarizing the presentation must (1) list all persons attending or otherwise participating in the meeting at which the *ex parte* presentation was made, and (2) summarize all data presented and arguments made during the presentation. If the presentation consisted in whole or in part of the presentation of data or arguments already reflected in the presenter’s written comments, memoranda or other filings in the proceeding, the presenter may provide citations to such data or arguments in his or her prior comments, memoranda, or other filings (specifying the relevant page and/or paragraph numbers where such data or arguments can be found) in lieu of summarizing them in the memorandum. Documents shown or given to Commission staff during *ex parte* meetings are deemed to be written *ex parte* presentations and must be filed consistent with rule 1.1206(b). In proceedings governed by rule 1.49(f) or for which the Commission has made available a method of electronic filing, written *ex parte* presentations and memoranda summarizing oral *ex parte* presentations, and all attachments thereto, must be filed through the electronic comment

(Continued from previous page)—————

agency, after consultation with the Office of Advocacy of the Small Business Administration (SBA) and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register.

³⁸⁷ Small Business Act, 15 U.S.C. § 632.

³⁸⁸ See 5 U.S.C. § 605(b).

³⁸⁹ *Id.*

³⁹⁰ 47 C.F.R. §§ 1.1200 *et seq.*

filing system available for that proceeding, and must be filed in their native format (e.g., .doc, .xml, .ppt, searchable .pdf). Participants in this proceeding should familiarize themselves with the Commission's *ex parte* rules.

4. Filing Instructions

253. Pursuant to sections 1.415 and 1.419 of the Commission's rules, 47 CFR §§ 1.415, 1.419, interested parties may file comments and reply comments on or before the dates indicated on the first page of this document. Comments may be filed using the Commission's Electronic Comment Filing System (ECFS). *See Electronic Filing of Documents in Rulemaking Proceedings*, 63 FR 24121 (1998).

- Electronic Filers: Comments may be filed electronically using the Internet by accessing the ECFS: <http://fjallfoss.fcc.gov/ecfs2/>.
- Paper Filers: Parties who choose to file by paper must file an original and one copy of each filing. If more than one docket or rulemaking number appears in the caption of this proceeding, filers must submit two additional copies for each additional docket or rulemaking number.

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- All hand-delivered or messenger-delivered paper filings for the Commission's Secretary must be delivered to FCC Headquarters at 445 12th St., SW, Room TW-A325, Washington, DC 20554. The filing hours are 8:00 a.m. to 7:00 p.m. All hand deliveries must be held together with rubber bands or fasteners. Any envelopes and boxes must be disposed of before entering the building.
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- U.S. Postal Service first-class, Express, and Priority mail must be addressed to 445 12th Street, SW, Washington DC 20554.
- People with Disabilities: To request materials in accessible formats for people with disabilities (braille, large print, electronic files, audio format), send an e-mail to fcc504@fcc.gov or call the Consumer & Governmental Affairs Bureau at 202-418-0530 (voice), 202-418-0432 (tty).

For further information, contact Robert Cannon, Senior Counsel, Office of Strategic Planning and Policy Analysis, at Robert.Cannon@fcc.gov, or at (202) 418-2421.

E. Proposal for Ongoing Data Initiative in GN Docket No. 13-5

1. *Ex Parte* Presentations

254. The proceeding this Notice initiates shall be treated as a "permit-but-disclose" proceeding in accordance with the Commission's *ex parte* rules.³⁹¹ Persons making *ex parte* presentations must file a copy of any written presentation or a memorandum summarizing any oral presentation within two business days after the presentation (unless a different deadline applicable to the Sunshine period applies). Persons making oral *ex parte* presentations are reminded that memoranda summarizing the presentation must (1) list all persons attending or otherwise participating in the meeting at which the *ex parte* presentation was made, and (2) summarize all data presented and arguments made during the presentation. If the presentation consisted in whole or in part of the presentation of data or arguments already reflected in the presenter's written comments, memoranda or other filings in the proceeding, the presenter may provide citations to such data or arguments in his or her prior comments, memoranda, or other filings (specifying the relevant page and/or paragraph numbers where such data or arguments can be

³⁹¹ 47 C.F.R. §§ 1.1200 *et seq.*

found) in lieu of summarizing them in the memorandum. Documents shown or given to Commission staff during *ex parte* meetings are deemed to be written *ex parte* presentations and must be filed consistent with rule 1.1206(b). In proceedings governed by rule 1.49(f) or for which the Commission has made available a method of electronic filing, written *ex parte* presentations and memoranda summarizing oral *ex parte* presentations, and all attachments thereto, must be filed through the electronic comment filing system available for that proceeding, and must be filed in their native format (e.g., .doc, .xml, .ppt, searchable .pdf). Participants in this proceeding should familiarize themselves with the Commission's *ex parte* rules.

2. Filing Instructions

255. Pursuant to sections 1.415 and 1.419 of the Commission's rules, 47 CFR §§ 1.415, 1.419, interested parties may file comments and reply comments on or before the dates indicated on the first page of this document. Comments may be filed using the Commission's Electronic Comment Filing System (ECFS). *See Electronic Filing of Documents in Rulemaking Proceedings*, 63 FR 24121 (1998).

- Electronic Filers: Comments may be filed electronically using the Internet by accessing the ECFS: <http://fjallfoss.fcc.gov/ecfs2/>.
- Paper Filers: Parties who choose to file by paper must file an original and one copy of each filing. If more than one docket or rulemaking number appears in the caption of this proceeding, filers must submit two additional copies for each additional docket or rulemaking number.

Filings can be sent by hand or messenger delivery, by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail. All filings must be addressed to the Commission's Secretary, Office of the Secretary, Federal Communications Commission.

- All hand-delivered or messenger-delivered paper filings for the Commission's Secretary must be delivered to FCC Headquarters at 445 12th St., SW, Room TW-A325, Washington, DC 20554. The filing hours are 8:00 a.m. to 7:00 p.m. All hand deliveries must be held together with rubber bands or fasteners. Any envelopes and boxes must be disposed of before entering the building.
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- U.S. Postal Service first-class, Express, and Priority mail must be addressed to 445 12th Street, SW, Washington DC 20554.
- People with Disabilities: To request materials in accessible formats for people with disabilities (braille, large print, electronic files, audio format), send an e-mail to fcc504@fcc.gov or call the Consumer & Governmental Affairs Bureau at 202-418-0530 (voice), 202-418-0432 (tty).

For further information, contact Mark Stone, Deputy Chief, Consumer and Governmental Affairs Bureau, at Mark.Stone@fcc.gov, or at (202) 418-0816.

IX. ORDERING CLAUSES

A. Order in GN Docket Nos. 13-5 and 12-353

256. Accordingly, IT IS ORDERED that, pursuant to sections 1, 4, 7(a), 201(b), 214, 230(b), 251, 257, 303(g), 403, of the Communications Act of 1934, as amended, and section 706 of the Telecommunications Act of 1996, 47 U.S.C. §§ 151, 154, 157(a), 201(b), 214, 230(b), 251, 257, 303(g), 403, and 1302, and section 1.1 of the Commission's rules, 47 C.F.R. § 1.1, the petition filed by AT&T on November 7, 2012 in GN Docket No. 12-353 IS GRANTED to the extent described herein and otherwise is denied, and the Order in GN Docket Nos. 13-5 and 12-353 is ADOPTED, effective upon release.

B. Report and Order and Further Notice of Proposed Rulemaking in WC Docket No. 10-90

257. IT IS FURTHER ORDERED, that pursuant to the authority contained in sections 1, 2, 4(i), 201-206, 214, 218-220, 251, 252, 254, 256, 303(r), 332, 403 of the Communications Act of 1934, as amended, and section 706 of the Telecommunications Act of 1996, 47 U.S.C. §§ 151, 152, 154(i), 201-206, 214, 218-220, 251, 252, 254, 256, 303(r), 332, 403, and 1302, and sections 1.1 and 1.421 of the Commission's rules, 47 C.F.R. §§ 1.1, 1.421, this Report and Order in WC Docket No. 10-90 IS ADOPTED, effective thirty (30) days after publication of the text or summary thereof in the Federal Register, except for those rules and requirements involving Paperwork Reduction Act burdens, which shall become effective immediately upon announcement in the Federal Register of OMB approval, and except for the solicitation of non-binding expressions of interest in rural broadband experiments specified in paras. 105 and 134, which are effective upon release. It is our intention in adopting these rules that, if any of the rules that we retain, modify or adopt today, or the application thereof to any person or circumstance, are held to be unlawful, the remaining portions of the rules not deemed unlawful, and the application of such rules to other persons or circumstances, shall remain in effect to the fullest extent permitted by law.

258. IT IS FURTHER ORDERED, that pursuant to the authority contained in sections 1, 2, 4(i), 201-206, 214, 218-220, 251, 252, 254, 256, 303(r), 332, 403 of the Communications Act of 1934, as amended, and section 706 of the Telecommunications Act of 1996, 47 U.S.C. §§ 151, 152, 154(i), 201-206, 214, 218-220, 251, 252, 254, 256 303(r), 332, 403, and 1302, and sections 1.1 and 1.421 of the Commission's rules, 47 C.F.R. §§ 1.1, 1.421, this Further Notice of Proposed Rulemaking in WC Docket No. 10-90 IS hereby ADOPTED.

259. IT IS FURTHER ORDERED that pursuant to applicable procedures set forth in sections 1.415 and 1.419 of the Commission's Rules, 47 C.F.R. §§ 1.415, 1.419, interested parties may file comments on the Further Notice of Proposed Rulemaking in WC Docket No. 10-90 on or before 30 days after the date of publication in the Federal Register, and reply comments on or before 45 days after the date of publication in the Federal Register.

260. IT IS FURTHER ORDERED, that Part 54 of the Commission's rules, 47 C.F.R. Part 54, is AMENDED as set forth in Appendix A, and such rule amendments shall be effective 30 days after the date of publication of the rule amendments in the Federal Register, except to the extent they contain information collections subject to PRA review. The rules that contain information collections subject to PRA review WILL BECOME EFFECTIVE immediately upon announcement in the Federal Register of OMB approval and an effective date.

261. IT IS FURTHER ORDERED, that the Commission SHALL SEND a copy of this Report and Order and Further Notice of Proposed Rulemaking in WC Docket No. 10-90 to Congress and the Government Accountability Office pursuant to the Congressional Review Act, *see* 5 U.S.C. 801(a)(1)(A).

262. IT IS FURTHER ORDERED, that the Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, SHALL SEND a copy of this Report and Order and Further Notice of Proposed Rulemaking in WC Docket No. 10-90, including the Initial Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

C. Report and Order in CG Docket Nos. 10-51 and 03-123

263. IT IS FURTHER ORDERED that, pursuant to sections 1, 2, 4(i), 4(j), 225, 251, 254 and 303(r) of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 152, 154(i), 154(j), 225, 251, 254, 303(r), this Report and Order in CG Docket Nos. 10-51 and 03-123 IS ADOPTED, effective thirty (30) days after publication of the text or summary thereof in the Federal Register.

264. IT IS FURTHER ORDERED, that the Commission SHALL SEND a copy of this Report and Order in in CG Docket Nos. 10-51 and 03-123 to Congress and the Government Accountability Office pursuant to the Congressional Review Act, *see* 5 U.S.C. 801(a)(1)(A).

265. IT IS FURTHER ORDERED, that the Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, SHALL SEND a copy of this Report and Order in in CG Docket Nos. 10-51 and 03-123, including the Initial Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

D. Order and Further Notice of Proposed Rulemaking in WC Docket No. 13-97

266. IT IS FURTHER ORDERED that pursuant to sections 1, 4, 201, 251, and 303(g) of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 154, 201, 251, and 303(g), and section 1.1 of the Commission's rules, 47 C.F.R. § 1.1, the Order in WC Docket No. 13-97 is ADOPTED, effective upon release.

267. IT IS FURTHER ORDERED that pursuant to Sections 1, 4, 201, 251, and 303(r) of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 154, 201, 251, 303(r), and section 1.1 of the Commission's rules, 47 C.F.R. § 1.1, the Notice of Proposed Rulemaking in WC Docket No. 13-97 is hereby ADOPTED.

268. IT IS FURTHER ORDERED that pursuant to applicable procedures set forth in sections 1.415 and 1.419 of the Commission's Rules, 47 C.F.R. §§ 1.415, 1.419, interested parties may file comments on the Further Notice of Proposed Rulemaking in WC Docket No. 13-97 on or before 30 days after the date of publication in the Federal Register, and reply comments on or before 45 days after the date of publication in the Federal Register.

E. Proposal for Ongoing Data Initiative in GN Docket No. 13-5

269. IT IS ORDERED, that pursuant to Sections 1, 4(i), 4(j), 201 and 403 of the Communications Act of 1934, 47 U.S.C. §§ 151, 154, 201 and 403, this *Proposal for Ongoing Data Initiative* IS ADOPTED, effective upon release.

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch
Secretary

APPENDIX A
Final Rules

For the reasons discussed in the Report and Order, the Federal Communications Commission amends 47 C.F.R. Part 54 to read as follows:

PART 54 – UNIVERSAL SERVICE

1. The authority citation for Part 54 is modified to read as follows:

Authority: Sections 1, 4(i), 5, 201, 205, 214, 219, 220, 254, 303(r), and 403 of the Communications Act of 1934, as amended, and section 706 of the Communications Act of 1996, as amended; 47 U.S.C. 151, 154(i), 155, 201, 205, 214, 219, 220, 254, 303(r), 403, and 1302 unless otherwise noted.

2. Delete current § 54.309 and add new § 54.309 to read as follows:

§ 54.309 Connect America Fund Phase II Public Interest Obligations

(a) A price cap carrier electing Phase II model-based support is required to provide broadband service at actual speeds of at least 4 Mbps downstream/1 Mbps upstream, with latency suitable for real-time applications, including Voice over Internet Protocol, and usage capacity that is reasonably comparable to comparable offerings in urban areas, at rates that are reasonable comparable to rates for comparable offerings in urban areas.

(b) In addition, a price cap carrier electing Phase II model-based support is required to provide broadband service with actual speeds of at least 6 Mbps downstream to a specified number of locations, and upstream speeds of at least 1.5 Mbps to a specified number of locations, as determined by the Wireline Competition Bureau.

3. Add § 54.310 to read as follows:

§ 54.310 Connect America Fund for Price Cap Territories – Phase II

(a) Geographic Areas Eligible for Support. Connect America Phase II support may be made available for census blocks or other areas identified as eligible by public notice. The number of supported locations will be identified for each area eligible for support will be identified by public notice.

(b) Term of Support. Connect America Phase II model-based support shall be provided to price cap carriers that elect to make a state-level commitment for five years.

(c) Deployment Schedule. Recipients of Phase II funding must complete deployment to 85% of supported locations within three years of notification of Phase II support authorization and to 100% of supported locations within five years of notification of Phase II support authorization. For purposes of meeting the obligation to deploy to the requisite number of supported locations, incumbent price cap carriers accepting a state-level commitment may serve locations in census blocks with costs above the extremely high-cost threshold instead of locations in eligible census blocks, provided that they meet the public interest obligations set forth in § 54.309 for those locations, and provided that the total number of locations covered is greater than or equal to the number of locations in the eligible census blocks for which the state-level commitment is made.

(d) Disbursement of Phase II funding. An eligible telecommunications carrier will be advised by public notice when it is authorized to receive support. The public notice will detail how disbursements will be made.

4. Amend § 54.313(e) to read as follows:

§ 54.313 Annual reporting requirements for high-cost recipients

* * * * *

(e) In addition to the information and certifications in paragraph (a) if this section, any recipient of CAF Phase II support shall provide:

- (1) In the calendar year no later than three years after notification of authorization of CAF Phase II funding, a certification that the recipient is providing broadband meeting the requisite public interest obligations specified in § 54.309 to 85% of its supported locations.
- (2) In the calendar year no later than five years after notification of authorization of CAF Phase II funding, a certification that the recipient is providing broadband meeting the requisite public interest obligations specified in § 54.309 to 100% of its supported locations.
- (3) In the calendar year after the filing of its initial five-year service quality improvement plan, and every year thereafter, a progress report on the company's five-year service quality improvement plan, including the following information:

* * * * *

APPENDIX B**Additional Guidance on Service-Based Experiments****I. INTRODUCTION**

1. In today's Order in GN Docket Nos. 13-5 and 12-353 (Order), the Commission initiates a proceeding to solicit proposals for service-based experiments in which we expect providers will seek to provide customers with services based on new communications technologies in place of legacy services. Today's order sets forth value-based conditions, presumptions and relevant factors that comprise the substantive principles we will use to evaluate proposals, and explains that the burden is on the applicant to provide us with sufficient information to demonstrate that those principles will be satisfied. Consistent with today's Order, we set forth in this Appendix additional guidance on the types of information that would allow an applicant to demonstrate that burden has been met.

II. BASIC FEATURES OF EXPERIMENTAL DESIGN**A. Statement of Purpose**

2. To meaningfully review a proposal, we expect the Commission will need to consider the intended purpose of the proposed experiment, and proposed metrics that could be used to measure the success of different aspects of each experiment.¹

B. Scope

3. To approve a proposal, we expect the Commission should be able to identify the arena in which the proposed experiment would be conducted. Arenas may be defined by geography, product or service offering, user or usage type, or other criteria. We strongly encourage providers to conduct experiments in a diversity of arenas. For example, we encourage proposed experiments in urban, rural, and suburban areas, and experiments in arenas that involve differences in population density and other demographics, terrain, weather conditions, and other factors relevant to users' experience with communications networks.

C. Technical Parameters and Timeline

4. In evaluating a proposal, we expect the Commission will need to take into account the physical or other changes the provider plans to make to its network (including important database-related changes) and how those changes are likely to affect customers' services; how interconnecting providers and their customers likely will be affected; and whether customers, including wholesale customers, may need to purchase any new equipment or devices and how much any such equipment is likely to cost. It will be important to the Commission's analysis to understand the expected timeline for the proposed experiment, including timelines for the proposed network changes, the timing of any impacts on customers, and when the experiment is likely to be complete.

5. For proposed network changes, we expect the Commission should be able to evaluate in detail the impact of those changes on devices and services that are enabled by the provider's legacy network, even if the provider itself does not market or control those devices or services. For example, many customers have purchased and use fax machines, burglar alarms, medical monitoring devices, credit card readers, and other devices and related services that rely on the functionality of legacy copper networks. We will be interested to learn how a proposed experiment would affect such devices and services, including an enumeration of the types of devices and services that may not work equivalently well during the experiment.² The Commission will look, at a minimum, to understand how the proposed

¹ See, e.g., *supra* para. 34.

² See, e.g., Letter from Eric Branfman, Counsel for Granite Telecommunications, to Marlene H. Dortch, Secretary, Federal Communications Commission, GN Docket No. 13-5, at 1-2 (filed Jan. 17, 2014) (arguing that "wireless

(continued....)

network changes will affect: fax machines, security and medical systems, alerts and monitoring services, DVR services, credit card billing, 800 number service, making 500, 700, 900, 950, 976 calls, making calling card or dial-around calls, the use of abbreviated dialing codes,³ reaching an operator by dialing “0”, the ability to accept collect calls or third-number billed calls, ankle bracelets, and SMS notification services.⁴

D. Customer Participation

6. The Order contains a condition that a provider will not require existing customers to participate in the experiment unless they choose to do so (although the provider may propose an experiment in which new customers will not be offered the legacy service but only the experimental service). It will be critical to the Commission’s evaluation to be able to confirm that a proposal is consistent with this condition. We believe that making the experiments voluntary for existing customers serves the public interest. Pursuant to the Commission’s usual rules, however, applicants may seek a waiver of this condition by making a good cause showing that strict compliance is inconsistent with the public interest.⁵ The Commission will also look to applicants’ explanations of whether customers may elect to opt in to an experiment after it has been initiated or return to legacy services before the experiment is concluded, and the reasons for that proposal. As explained below, we expect providers to engage in customer outreach and education efforts and that customers be given adequate notice of the experiment.

E. Regulatory Relief or Authorizations

7. Each applicant should address what temporary regulatory relief or other Commission actions would be required to conduct the proposed experiment. No experiment that involves removing, reducing, or impairing a legacy service in favor of an experimental service may proceed under the framework of this Order unless the provider files for and we grant such discontinuance authority as may be required by section 214 of the Act.⁶ We recognize that applicants may require other authorizations in order to conduct a proposed experiment, possibly including temporary forbearance from or waivers of the Commission’s rules. To the extent an applicant seeks Commission action in the timeframe set forth

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communication is not an adequate substitute for the ILEC’s service because it does not support features needed by businesses, such as faxing, call hunting, message waiting, failover and Centrex features” or elevator alarm service).

³ For example, dialing 211 connects people with important community services and dialing 311 connects to non-emergency municipal services. Deaf individuals who use certain forms of TRS over traditional PSTN lines can dial 711 to reach TRS programs in any State. *See The Use of N11 Codes and Other Abbreviated Dialing Arrangements*, CC Docket No. 92-104, Second Report and Order, 15 FCC Rcd 15188, 15191, para. 3 (2000).

⁴ Various comments note the need for proposals to support advanced communications services such as HD voice, video conferencing, and SMS/MMS text. *See, e.g.*, NASUCA Comments, WC Docket No. 12-353, at 9-10; Letter from Jodie Griffin, Senior Staff Attorney, Public Knowledge, to Marlene H. Dortch, Secretary, Federal Communications Commission, GN Docket Nos. 13-5, 13-149, 12-353, at 3 (filed Aug. 23, 2013); Letter from Catherine R. Sloan, Vice President, Government Relations, CCIA, to Marlene H. Dortch, Secretary, FCC, GN Docket Nos. 13-5, 13-149, 12-353, at 2 (filed Aug. 21, 2013); Letter from Jason T. Lagria, Senior Staff Attorney, AAJC, to Marlene H. Dortch, Secretary, Federal Communications Commission, GN Docket No. 13-5 and WC Docket No. 12-353, at 2 (filed July 8, 2013).

⁵ As stated in the Order, *see* para. 37, the Commission’s normal waiver rules apply to the mandatory conditions for service-based experiments. 47 C.F.R. § 1.3 (“Any provision of the rules may be waived by the Commission on its own motion or on petition if good cause therefor is shown”). Thus, applicants may seek a waiver of this (or any other) condition by showing that special circumstances warrant a deviation from the condition, and such a deviation will serve the public interest. *See Northeast Cellular Telephone Co. v. FCC*, 897 F.2d 1164, 1166 (D.C. Cir. 1990).

⁶ 47 U.S.C. § 214(a), 47 C.F.R. §§ 63.63, 63.71; *see also* 47 C.F.R. §§ 20.15(b)(3), 63.19(c) (exempting CMRS from section 214 discontinuance requirements).

below on any such request, it must file that request simultaneously with its experiment proposal.⁷ When making such a request, applicants should identify the relevant legal standard(s) and provide an appropriate justification for the requested Commission or Bureau action, including sufficient evidence to support the request.⁸

F. Other Governmental Entities

8. As noted in the Order, the Commission will notify State public utility commissions as well as any government entities having jurisdiction in the geographic area affected by the experiment or over the affected services. It will be helpful to the Commission's review, if Applicants identify any State, local, and Tribal authorities with such jurisdiction.

9. It will be important to our evaluation to understand what authorizations or approvals applicants expect to require from other governmental entities, including other federal entities, and State, local, and/or Tribal governments. Specifically, in reviewing proposals, we expect to find useful information about what type of regulatory approvals are required from each such entity; appropriate identification and contact information for each such entity; the statutory provision, rule, or requirement subject to any such authorizations; the entities for which any such authorization is sought; each service for which such authorization is sought; each geographic location, zone, or area at issue; the timeframes expected to apply to any such necessary applications for authorizations and any other factor, condition, or limitation relevant to determining the scope of the requested relief.

10. Today's Order adopts a rebuttable presumption that proposed experiments will comply with all applicable State laws and regulations. Specifically, we presume that authorization of an applicant's proposed experiment will be contingent on our assurance that an applicant will comply with all applicable State laws and regulations. To comply with this presumption, an applicant may make its proposal contingent upon obtaining any required approvals from relevant authorities. To rebut the presumption – i.e., to obtain an FCC grant of authorization for an experiment that does not comply with a State law or regulation – the applicant must request that the FCC preempt that law or regulation and provide evidence sufficient to demonstrate the legal basis and grounds for any such requested preemption.

III. VALUES-BASED CONDITIONS, PRESUMPTIONS AND QUESTIONS

11. Today's Order emphasizes the crucial importance of ensuring that any experiment encourages technological advances while preserving and protecting the enduring values established by Congress – the public safety, universal access, competition, and consumer protection values Americans have come to expect from their communications networks. To do so, the Order establishes the conditions that must be met in any service-based experiment to protect these values. It also establishes certain presumptions that service-based experiments will meet that may be rebutted upon sufficient showing by an applicant. It also identifies additional relevant factors, where the Commission has not taken a position, but that will be relevant to the Commission's and the public's consideration of any proposal. We provide additional guidance on the types of information that applicants can provide to demonstrate compliance with this framework.

⁷ See, e.g., 47 C.F.R. § 1.44 (requiring separate requests for action on delegated authority and action by the full Commission); *id.* § 1.53 (requiring that forbearance petitions be filed separately).

⁸ Because the focus of the experiments is on consumer impacts rather than resolving legal and policy matters, applicants may choose to make such a request while disclaiming that the requested authorization is required. See, e.g., *AT&T Inc. v. FCC*, 452 F.3d 830, 837 (D.C. Cir. 2006) (holding that “the Commission may not refuse to consider a [forbearance] petition’s merits solely because the petition seeks forbearance from uncertain or hypothetical regulatory obligations”).

A. Public Safety**1. Conditions****a. 911/E911 and Next Generation 911 Capabilities**

12. The Order makes clear that reliable 911 services are essential to effective and timely public safety response and must be maintained in any experiment. We believe the transition experiments present a unique opportunity for the Commission, other governmental agencies, stakeholders, and consumers, to test the impact that the TDM-IP transition will have on legacy 911/E911 infrastructure, to test and plan for the transition to NG911, and to coordinate closely with service providers as IP-based networks develop and expand.

13. *Legacy 911/E911.* Any TDM-IP experiment cannot be allowed to disrupt or hinder TDM-dependent PSAPs from meeting their public safety mission. Experiments should ensure that there is no diminution of consumer access to 911/E911 emergency services, nor any reduction in the level of connectivity and functionality that PSAPs require to support 911 calls.⁹ In reviewing proposals, it will be important to the Commission's evaluation to understand how the applicant will ensure that PSAPs continue to receive all consumer, location, and phone identifying information associated with a 911/E911 call consistent with existing FCC rules and regulations. Likewise, the Commission will look for assurances that PSAPs are to be provided with at least the same level of network access, resiliency, redundancy, security, and functionality that they enjoy under agreements and tariffs currently framing the legacy emergency network.

14. *911 Network Reliability.* In the *911 Network Reliability R&O*, the Commission adopted rules requiring "Covered 911 Service Providers" to certify annually that they have implemented certain industry-backed best practices or taken reasonable alternative measures to provide reliable 911 service.¹⁰ Applying this definition to proposals for experiments, we expect each applicant that provides 911 service as defined in the *911 Network Reliability R&O* to meet these requirements throughout the duration of the experiment. To the extent an applicant aims to demonstrate adherence to the certification elements by implementing an "alternative measure," it will be important for the Commission to understand the measure and its reasonableness given the parameters of the experiment.

15. *NG911.* NG911 architecture differs significantly from the legacy 911 TDM model. Therefore, it will be important for the Commission to understand how experiment proposals that propose to test NG911 architecture, or elements thereof, as part of an experiment will affect delivery of 911 calls to all PSAPs that serve customers in the operating area of the experiment, including customers of other service providers. If an applicant proposes to offer service over non-TDM systems in central offices or areas that serve legacy PSAPs but are not served by NG911, the Commission will consider the applicant's plans for serving such PSAPs. Relatedly, the Commission will consider data on both the challenges of

⁹ All telecommunications carriers are required to transmit all 911 calls to PSAPs. *See* 47 C.F.R. § 64.3001. VoIP providers are obligated to provide E911 capability to consumers and transmit all 911 calls, including ANI or p-ANI and registered location, to the PSAP. Owners and controllers of 911 capabilities must provide access to VoIP providers to facilitate 911 call transmission. *See* 47 C.F.R. §§ 9.1-9.7. CMRS providers (with limited exclusions) are obligated to provide Basic 911 service by transmitting all wireless 911 calls to PSAPs, and Phase I or Phase II enhanced 911 services to requesting PSAPs (including location information). *See* 47 C.F.R. § 20.18. Mobile-Satellite Service providers are obligated to provide Emergency Call Center service. Emergency Call Center personnel must determine the caller's phone number and location and then transfer or otherwise redirect the call to an appropriate PSAP. *See* 47 C.F.R. § 25.284.

¹⁰ *See Improving 911 Reliability; Reliability and Continuity of Communications Networks, Including Broadband Technologies*, PS Docket No. 13-75; PS Docket 11-60, Report and Order, FCC 13-158 (rel. Dec. 12, 2013) (*911 Network Reliability R&O*). The term "Covered 911 Service Provider" is defined to include any entity that provides an element of 911 service (e.g., 911 call routing, ALI) directly to a PSAP, notwithstanding the technology used to provide the service.

transitioning from E911 to NG911 and the operational performance characteristics of NG911 call handling. For proposals that test elements of a transition from legacy 911 to NG911, our focus will be on both the scope and process providers wish to employ during the transition. It will be important for the Commission to understand applicants' design and conversion process, including effort and time required, and specific data that will be gathered on call-handling performance, interoperability issues, location accuracy, and any system failures.

16. The Commission also will need to understand how 911 would continue to function during experiments if an all-IP system is not yet ready to be tested. Among other things, the Commission expects to consider whether a proposal allows: (1) VoIP and other IP-based networks to readily interconnect with ESInets; (2) advanced real-time services, such as photos, video and text, to reach ESInets; and (3) subscriber location data to be obtained and conveyed to ESInets. We expect assurance that all the obligations that already extend to interconnected VoIP providers, (e.g., LNG, E911), as well as access for those same providers to 911 and E911 service capabilities, will apply during the testing process, and that E911 traffic will be converted from IP to TDM where the PSAP has not yet upgraded to IP-based equipment. Understanding any applicable State commission rules affecting a conversion from E911 to NG911 will also be important for the Commission's evaluation.

b. Safeguards to Ensure Public Safety Functionality in Adverse Conditions

17. As stated in today's Order, all experiments must ensure that, in the event of a public safety failure, the provider will be able to immediately restore its legacy service, fix its IP-based service, or provide a comparable service. We further expect that there will be safeguards that will be implemented to maintain the connectivity and public safety functionality of the underlying legacy service or the IP-based service when the proposed experiment encounters adverse conditions. It will be important to the Commission's evaluation to understand any adverse conditions or occurrences that applicants anticipate could cause the experiment to fail, whether such failure is temporary or permanent and ranging from failure of an experiment component to catastrophic failure of the experiment as a whole. We will need to be persuaded that, to address such contingencies, applicants have plans for restoring their current level of service, either by reverting to legacy TDM facilities, fixing their IP-based service, or through some other fall-back mechanism, in the event public safety is compromised (*i.e.*, approved public service level objectives and performance are not met) during the course of the experiment.

c. Protect Essential Communications Services for Safety of Life and National Security

18. Today's Order makes clear that protecting essential national security and federal safety of life communications services is a mandatory condition of any experiment. Thus, in evaluating proposals, we must be able to confirm that there will be no disruption to national security, emergency preparedness, and public safety operations that today depend on existing TDM-based communications services. Experiments must also allow for the continuation of TDM-based networks and services for critical Federal systems until it is proven that IP-based solutions can meet system requirements for the performance of safety of life and national security missions. Use cases providing evidence that seamless transition can occur – with no loss of critical functionality – for programs and systems designed to operate on legacy platforms will be helpful to our review.

d. Network Security

19. An applicant for service-based experiments must take reasonable measures to ensure that the network services it intends to deliver over IP-based facilities during the proposed experiment are protected from cybersecurity threats and vulnerabilities. In reviewing proposals, the Commission expects to look for detailed descriptions, including supporting data, of what security practices the applicant has undertaken to secure the IP-based infrastructure it proposes to use in its experiments. We encourage

applicants to consult the National Institute of Standards and Technology (NIST) Cybersecurity Framework¹¹ as well as applicable CSRIC best practices¹² and recommendations, for guidance.

20. The Commission will also consider descriptions of the Supply Chain Risk Management (SCRM) practices applicants will follow in the course of conducting their experiments, and will look for sufficient data to allow the Commission to verify that applicants adequately adhere to supply chain security requirements in selecting the vendors that supply hardware and software for, and/or operate, their networks. We further expect applicants to demonstrate their awareness and understanding of these evolving threats, and to affirm that they will continually monitor their networks and services to ensure that they maintain levels of integrity, confidentiality, reliability, and availability comparable to those of legacy services. In order for the Commission to have data with which to judge the success of the experiment, the Commission will need to understand how applicants will become aware of cyber events that cause disruptions to communications and that applicants will agree to provide the Commission with information about such disruptions that occur during the experiment.

e. Backup Power

21. As noted in today's Order, some commenters believe the PSTN has a reliability advantage over an IP fiber-based or wireless network because the TDM copper network carries an independent source of power that preserves service during emergencies when the electric power grid fails.¹³ Applicants must ensure that their experiments comply with the backup power rules adopted in the *911 Network Reliability R&O*.¹⁴ Accordingly, we must be able to evaluate the provisioning of backup power in an experiment, both for facilities within the provider's network and for end-user equipment located at customer premises. To evaluate these measures, the Commission will need to understand a range of hypothetical use cases involving commercial power outages of varying duration, e.g., ranging from a few hours to several days or weeks. Information regarding the extent to which proposed experiments would be capable of maintaining continuous operation during such a range of outages will be critical to the Commission's analysis.

¹¹ See Cybersecurity Framework, National Institute of Standards and Technology Information Technology Laboratory, <http://www.nist.gov/itl/cyberframework.cfm> (last visited Dec. 11, 2013). Developed pursuant to Executive Order 13636, this "voluntary framework for reducing cyber risks to critical infrastructure" comprises "standards, guidelines, and best practices to promote the protection" of that infrastructure. *Id.* In October 2013, NIST sought comment on a preliminary version of the Framework. See National Institute of Standards and Technology, Preliminary Cybersecurity Framework (2013), <http://www.nist.gov/itl/upload/preliminary-cybersecurity-framework.pdf> (Preliminary Cybersecurity Framework). Participants may consult this document pending the issuance of a final Cybersecurity Framework.

¹² See CSRIC III Working Group 4, Network Security Best Practices, Final Report – BGP Security Best Practices (Mar. 2013), http://transition.fcc.gov/bureaus/pshs/advisory/csric3/CSRIC_III_WG4_Report_March_%202013.pdf; CSRIC III Working Group 4, Network Security Best Practices, Final Report – DNS Best Practices (Sept. 2012), http://transition.fcc.gov/bureaus/pshs/advisory/csric3/CSRICIII_9-12-12_WG4-FINAL-Report-DNS-Best-Practices.pdf; CSRIC II Working Group 2A, Cyber Security Best Practices (Mar. 2011), <http://transition.fcc.gov/pshs/docs/csric/WG2A-Cyber-Security-Best-Practices-Final-Report.pdf>.

¹³ See, e.g., Mich. PSC Reply, WC Docket No. 12-353, at 14-15; Ind. URC Comments, WC Docket No. 12-353, at 2; Interisle Comments, WC Docket No. 12-353, at 8 (maintaining that the PSTN has responsibilities, such as reliable 911 calling, that are not well suited to the Internet's operational model); TechFreedom Comments, GN Docket No. 12-253, at 8 (stating that a copper network, unlike a fiber network, has a second electrical grid that powers phones even when the power grid goes down during emergencies).

¹⁴ See *911 Network Reliability R&O* at paras. 106-107. The recently adopted rules regarding the provision of backup power at central offices among other measures to ensure the reliability of 911 services is addressed in para. 44 of the Order above.

f. Outage Reporting

22. Part 4 of the Commission's rules requires various classes of communications providers, including providers of TDM voice services, to report to the Commission network outages that exceed specified thresholds of impact on consumers and critical services, and in some instances providers must also provide notification to affected PSAPs.¹⁵ Accordingly, we are more likely to be persuaded that our public safety concerns are satisfied if an applicant commits to filing outage reports and PSAP notification consistent with the Part 4 rules that pertain to each legacy service being replaced during an experiment, regardless of the extent to which the rules would apply in the first instance to the type of IP-based service that replaces it.

g. CALEA Capabilities

23. Today's Order provides that service-based experiments must comply with the Communications Assistance for Law Enforcement Act (CALEA).¹⁶ The Commission expects that providers participating in any experiment involving the provision of service to customers will satisfy CALEA, their obligations under Titles 18 and 50, and similar State requirements, and will consider applicants' commitment to do so in its evaluation of any proposal.

2. Presumptions**a. Network Reliability**

24. In today's Order, the Commission presumes that current levels of reliability, including the ability to function during commercial power failures and security from external attack, should be maintained in an experiment. We are also interested in sustaining the reliability of the transitioned networks. For the PSTN, the Commission has found it very valuable for service providers to follow voluntary best practices that have been recommended by the Communications Security, Reliability, and Interoperability Council (CSRIC). Accordingly, the Commission will consider the extent to which applicants will follow the CSRIC best practices in the course of conducting their experiments, and find valuable the provision of sufficient data to allow the Commission to verify that applicants adequately adhere to these practices.

b. Provision of Public Alerts

25. Today's Order presumes that applicants who support provision of Wireless Emergency Alerts (WEA) over some or all of their service areas' legacy infrastructure will continue to provide WEA or provide equivalent alerting capability in such areas in their experiments and will establish appropriate monitoring to ensure that these alerts are effectively received during the course of experimental operations.¹⁷ Where experiment applicants elect not to provide WEA alerts, in whole or in part, for experiments conducted in such areas, applicants may be able to rebut the presumption by providing notice of this non-election to affected customers and the Commission at least sixty (60) days prior to the effective date of their withdrawal, as required by Part 10 of the Commission's rules.

26. We also presume that experiments involving the deployment of IP technologies will maintain legacy alerting capabilities provided through the Emergency Alert System (EAS).¹⁸ We also encourage applicants to propose alerting enhancements, such as alert delivery to non-English speaking communities;¹⁹ alert delivery to hearing-impaired and other members of disability communities; and

¹⁵ See 47 C.F.R. Part 4.

¹⁶ Pub. L. No. 103-414, 108 Stat. 4279 (1994) (codified as amended in sections of 18 U.S.C. and 47 U.S.C.).

¹⁷ See 10 C.F.R. § 10.240.

¹⁸ See 47 C.F.R. §§ 11.1, 11.2, 11.41, 11.54, 11.56 and 11.61.

¹⁹ See, e.g., Letter from David Honig, President, Minority Media and Telecom Council, to Marlene H. Dortch, Secretary, Federal Communications Commission, EB Docket Nos. 04-296, 06-119, MB Docket Nos. 09-182, 07-

(continued....)

enhancements to alert-related information generally delivered to all communities. In any such experiments, we expect to require that appropriate metrics document the effectiveness of enhanced alerting as experienced by the customers of EAS Participants and others conducting the experiments.

c. Public Safety Priority Services

27. Today's Order states that a relevant factor in evaluating proposals will be how the experiment will accommodate priority access, routing, provisioning, and restoration for essential national security and emergency preparedness communications. Wireless Priority Service (WPS), Government Emergency Telecommunications Service (GETS), and Telecommunications Service Priority (TSP) are at the core of continuity planning and are vital for tactical, emergency response.²⁰ Given the importance of priority services to the national security and emergency preparedness community during an incident, we presume that proposals by carriers and interconnected VoIP service providers will provide WPS-, GETS- and TSP-like functionalities in the transitioned networks, so that first responders and national security personnel can communicate over commercial networks during disasters or crises even if those networks are congested or degraded. Whether the proposed experiment will support improved priority communications over what is currently offered on wireless and wireline communications today will also be a relevant factor in the Commission's analysis.

B. Universal Access

1. Ensuring Access for Persons with Disabilities

28. Ensuring that people with disabilities continue to have access to evolving technologies is a core value of the Act, as demonstrated by Congress's repeated amendments to the Act for that purpose.

29. As today's Order makes clear, no experiment should jeopardize access to communications for persons with disabilities. As such, we will only be able to approve a proposal if we are convinced that the proposed experiment considered accessibility issues, including by complying with disability accessibility requirements mandated by statutes and Commission rules. Applicants may seek a waiver from these regulations under our existing waiver rules to the extent there is a technological or other impediment to technical compliance.

30. We also recognize that new technologies have the potential for negative impacts. Therefore, the Commission's evaluation will also take into account details about how applicants will ensure they meet the needs of persons with disabilities. In designing experiments, providers should pay particular attention to access to 911 services by individuals with disabilities, the provision of TRS, the transmission of remote closed captions, and the development, use of, and compatibility with assistive technologies.

2. Specific Populations

31. Today's Order provides that we expect service-based experiments to protect the interests of specific vulnerable populations, such as the elderly, individuals with limited English proficiency (LEP), low-income populations, residents of Tribal lands, and others who likely will be affected by changes in communications technology in ways different from the general population. Accordingly, the

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294, WT Docket Nos. 05-211, 13-135, GN Docket Nos. 09-191, 12-353, 13-5, WC Docket No. 07-52 (filed Dec. 17, 2013).

²⁰ At present, TSP is mandatory for all carriers. WPS is voluntary, but participating carriers follow Commission rules. GETS is also voluntary. See 47 C.F.R. Part 64, Appx. A, B; see also *National Security Emergency Preparedness Telecommunications Service Priority System*, WT Docket No. 96-86, Report and Order, 3 FCC Rcd 6650 (1988); *The Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Agency Communication Requirements Through the Year 2010 and Establishment of Rules and Requirements for Priority Access Service*, WT Docket No. 96-86, Second Report and Order, 15 FCC Rcd 16720 (2000) (*WPS Report and Order*) (Priority Access Service is now called Wireless Priority Service).

Commission will need to understand what accommodations proposed experiments will include to protect the interests of any specific populations that are potentially at risk, including ensuring that no consumer loses access to service or critical functionalities as a result of the experiment.

3. Maintain Universal Service Status Quo

32. The Act directs the Commission to ensure universal access to quality services, including advanced telecommunications and information services, at just, reasonable, and affordable rates in all regions of the country.²¹ Today's Order adopts a rebuttable presumption the service-based experiments will not deviate from any existing universal service rules and policies,²² and that applicants will continue to be subject to rules and policies regarding both support and contribution obligations.²³ We presume that the applicant will maintain ETC status, to the extent it is an ETC, and that the applicant will comply with all obligations arising from such status, as those obligations exist now or may be addressed in the future.²⁴ In this regard, we remind applicants that all ETCs must continue to make Lifeline service available to all qualifying consumers.²⁵ We also presume that applicants that are telecommunications carriers will continue to meet the requirements of section 254(h) and our implementing rules.²⁶ Would applicants meet health care provider needs for high quality, symmetrical broadband connectivity?²⁷ We also are interested in the impact that participation in an experiment would have on State universal service programs. Because we do not wish to foreclose the opportunity for worthy experiments that may require some technical deviations from the current regulatory requirements, we reiterate that applicants may attempt to rebut these presumptions when filing their proposals. However, applicants will bear a heavy burden in doing so.

4. Preserve and Enhance Broadband Access

33. For the reasons provided in today's Order, the Commission presumes that any applicant for a service-based experiment would continue to provide the same or better levels of Internet access regardless of the technology used.²⁸ The Commission will look for confirmation of the extent to which each proposed experiment complies with this presumption. For example, in reviewing proposals, it will be important for the Commission to understand in detail any changes in the speed, latency, or jitter of the Internet access services offered in the experiment area, and any differences in the price or usage capacities associated with those offerings. Alternatively, the Commission would need to be presented with sufficient evidence to justify rebutting this presumption in the context of a specific experiment.

34. *No Reduction in Overall Quality of Service.* As noted in today's order, the Commission will presume that service offerings based on new technology will offer equivalent or better quality to comparable legacy-based services.²⁹ By quality of service, we include attributes of a service that would

²¹ See 47 U.S.C. § 254(b).

²² See generally 47 U.S.C. §§ 214, 254; 47 C.F.R. Part 36, Subpart F; 47 C.F.R. Part 54.

²³ To the extent the Commission modifies or eliminates universal service rules in any of its pending universal service dockets, applicants' obligations would change accordingly.

²⁴ 47 U.S.C. § 214(e)(4) (describing the relinquishment process).

²⁵ 47 C.F.R. § 54.405(a) ("Carrier obligations to offer Lifeline").

²⁶ See generally 47 C.F.R. Part 54, Subparts F and G.

²⁷ See *Rural Health Care Support Mechanism*, WC Docket No. 02-60, Report and Order, 27 FCC Rcd 16678, 16693-94 and 16832-46, paras 29-30 and Appx. B (Assessment of Broadband Needs of Healthcare Providers) (2012).

²⁸ This would include, but not be limited to, Internet access customers that are supported through either the schools and libraries or the rural health care mechanisms.

²⁹ See Order, *supra* para. 57.

be directly quantifiable by a customer as well as performance objectives such as a blocking or failure rates that might be set by the service provider. Alternatively, applicants should provide sufficient evidence to justify rebutting this presumption in the context of a specific experiment.

C. Competition

1. Wholesale Access

35. Today's Order requires that service-based experiments maintain a competitor's access to an applicant's network.³⁰ As such, in evaluating proposals, it will be critical for the Commission to understand: (1) the applicant's plan to ensure that the same types of wholesale customers can continue to use its network; (2) the applicant's plan to ensure that the access provided during the experiment – whether provided through unbundling, resale, or purchase of special access – is functionally equivalent to that provided immediately before the experiment; (3) the applicant's plan to ensure that the prices or costs of such access do not increase as a result of the experiment; (4) the applicant's plan to ensure that neither wholesale nor retail customers are penalized as a result of the experiment (e.g., purchases of alternative services count towards discounts for purchases outside of the experiment areas, early termination fees are waived if early termination is caused by the experiment); and (5) whether the experiment will have any other impact on the provider's wholesale customers.

2. Intercarrier Compensation

36. As discussed in the Order, we presume that applicants will maintain the status quo ante in their experimental arenas in accordance with the Commission's *USF/ICC Transformation Order*, which addresses ICC revenue flows, including the ICC applicable to VoIP-PSTN traffic and related subsidies.³¹ It will be important for the Commission to either have confirmation that the ICC status quo ante will be maintained or, if an applicant wishes to rebut our presumption, the Commission will need to be persuaded by a detailed explanation of what implications the experiment would have for the status quo and what justification supports any such changes.

37. Additionally, we expect the following ICC issues will be relevant to the Commission's evaluation with respect to specific proposed experiments: What, if any, impact would participation in the experiment have on ICC revenues and obligations? Should any obligation or permission to file access tariffs and authorization to charge subscriber line charges (SLCs) and access recovery charges (ARCs) continue? If any changes to a carrier's tariffing rights or ability to charge SLCs and ARCs are necessary or appropriate, what are those changes and why they are necessary or appropriate? Should the Commission adjust any participant's total ICC Eligible Recovery to ensure that the experiment itself does not increase the rates paid by customers not participating in the experiment? If so, we seek comment on how to implement any adjustment to ICC Eligible Recovery and whether any rules need to be waived.

38. Finally, assuming that traffic originating from a wire center participating in the experiment and bound for IP termination would not be subject to TDM conversion as part of its transmission path, the Commission expects to consider whether maintenance of the ICC status quo ante would require that ICC obligations and rights apply,³² and if not, what distinctions form a basis for not

³⁰ Access requirements include 47 U.S.C. §§ 203, 251.

³¹ *Connect America Fund; A National Broadband Plan for Our Future; Establishing Just and Reasonable Rates for Local Exchange Carriers; High-Cost Universal Service Support; Developing an Unified Intercarrier Compensation Regime; Federal-State Joint Board on Universal Service; Lifeline and Link-Up; Universal Service Reform – Mobility Fund*, WC Docket Nos. 10-90, 07-135, 05-337, 03-109, GN Docket No. 09-51, CC Docket Nos. 01-92, 96-45, WT Docket No. 10-208, Report and Order and Further Notice of Proposed Rulemaking, 26 FCC Rcd 17663, 18002-28, paras. 933-71 (2011) (*USF/ICC Transformation Order*), *pets. for review pending sub nom. In re* FCC 11-161, No. 11-9900 (10th Cir. filed Dec. 8, 2011).

³² See 47 C.F.R. § 51.913.

applying ICC rights and obligations to all such traffic, and what different treatment should apply to what categories of traffic.

3. Interconnection

39. Today's Order requires that applicants maintain the status quo for interconnection in any service-based experiment.³³ Therefore, it will be important to the Commission's analysis to understand how the status quo ante will be preserved during an experiment. Specifically, we would expect to take into account the following: (1) the applicant's plan to ensure that the same types of providers can continue to interconnect with its network; (2) the applicant's plan to ensure that interconnection provided during the experiment is functionally equivalent to that provided immediately before the experiment; (3) the applicant's plan to ensure that the prices or costs of interconnection do not increase as a result of the experiment; and (4) how existing interconnections will be affected, if at all, by an experiment.

D. Consumer Protection

1. Customer Privacy

40. Applicants must ensure that their proposed experiments maintain network users' reasonable expectations of privacy, regardless of the technology used.³⁴ To assist with our consideration of experiment proposals, Commission will need to understand, in detail, the expected privacy implications of an applicant's experiment and be assured that experiment proposals comply with existing privacy requirements.

2. Truth in Billing, Slamming, Cramming

41. Experiments must comply with the truth-in-billing rules, which are intended to address both slamming and cramming,³⁵ and the Commission's other anti-slamming rules.³⁶ Thus, in reviewing proposals, it will be important for the Commission to understand specifically how applicants will ensure that consumers continue to receive the benefits of these protections during the experiment.

3. Local Number Portability

42. As discussed in today's Order, the Commission's current number portability rules and policies will apply to any service-based experiment.³⁷ In evaluating proposals, the Commission will need to understand how the experiment will ensure the continued ability of the providers' customers to keep their numbers and enable number portability. In addition, incumbent LEC rate centers play an important

³³ See 47 C.F.R. § 251.

³⁴ CCIA Reply, WC Docket No. 12-353, at ii, 11-12; Precursor Comments, WC Docket No. 12-353, at 2 (stating that consumers deserve to know if their privacy, safety, property or money is protected from real harms regardless of the technology, product, or service involved); Public Knowledge Comments, WC Docket No. 12-353, at 6.

³⁵ See *Truth-in-Billing and Billing Format*, CC Docket No. 98-170. Order on Reconsideration, 15 FCC Rcd 6023 (2000) (*Truth-in-Billing Order on Reconsideration*); *Truth-in-Billing and Billing Format*, National Association of State Utility Consumer Advocates' Petition for Declaratory Ruling Regarding Truth-in-Billing, CC Docket No. 98-170, Second Report and Order, Declaratory Ruling, and Second Further Notice of Proposed Rulemaking, 20 FCC Rcd 6448 (2005), *vacated in part sub nom. Nat'l Ass'n of State Util. Consumer Advocates v. FCC*, 457 F.3d 1238 (11th Cir. 2006) (invalidating preemption of certain State requirements for CMRS bills).

³⁶ See, e.g., Public Knowledge Comments, WC Docket No. 12-353, at 6; Mass. Dep't Telecomm. & Cable Comments, WC Docket No. 12-353, at 8; Nat'l Hispanic Media Coal. Reply, WC Docket No. 12-353, at 4; NASUCA Comments, WC Docket No. 12-353, at 23-24; AARP Comments, WC Docket No. 12-353, at 16; Mich. PSC Reply, WC Docket No. 12-353, at 5-6. The truth-in-billing rules are codified at 47 C.F.R. § 64.2400 *et seq.* The anti-slamming rules are codified at 47 C.F.R. § 64.1100 *et seq.*

³⁷ See 47 U.S.C. §§ 251(b)(2); 47 C.F.R. Part 52, Subpart C.

role in number portability not only for their own customers but for other providers' customers as well.³⁸ Thus, the Commission will likewise need to understand whether any other providers' customers could potentially be affected by a proposed experiment and what measures will be taken to ensure that the ability of other providers' customers to keep and port their numbers will not be jeopardized.

4. Routing

43. Today's Order makes clear that any service-based experiment must ensure that routing and call delivery processes are in place so calls are successfully completed as emphasized in various Commission orders, including the *RCC Order*³⁹ and the *USF/ICC Transformation Order*.⁴⁰ Consistent with the goals of these experiments, we encourage providers to test new and more efficient functionalities with advanced technologies, while ensuring that consumers are able to call everyone they formerly were able to call over their legacy service without call completion failures. As underscored in Commission orders, any call delivery failures have significant public interest ramifications.⁴¹ Thus, the Commission's evaluation of proposals will include an assessment of how applicants intend to deal technologically with the problems identified in these orders, which the rules and obligations set forth in these orders address. For example, how are applicants going to be able to identify the providers who have been in the path of a long-distance call? How will Calling Party Number integrity be ensured? And how will looping be prevented from occurring? The experiments must build in the tools and means for addressing the problems identified and described in the Commission's orders.⁴²

³⁸ For example, wireline carriers are currently required to port to other wireline carriers only within the same rate center, and wireless carriers must maintain the original rate center designation when porting a number. See *Telephone Number Portability*, CC Docket No. 95-116, RM-8535, Second Report and Order, 12 FCC Rcd 12281, 12283, para. 3 (1997); *Telephone Number Portability; CTIA Petitions for Declaratory Ruling on Wireline-Wireless Porting Issues*, CC Docket No. 96-116, Memorandum Opinion and Order and Further Notice of Proposed Rulemaking, 18 FCC Rcd 23697, 23706, para. 22 (2003). Interconnected VoIP providers' porting obligations are currently based on those of their numbering partners. See *VoIP LNP Order*, 22 FCC Rcd at 19549-50, para. 34.

³⁹ *Rural Call Completion*, WC Docket No. 13-39, Report and Order and Further Notice of Proposed Rulemaking, 28 FCC Rcd 16154 (2013) (*RCC Order*) (requiring certain collection and reporting data on how successfully calls are being delivered, especially to rural areas; prohibiting false audible ringing; and seeking comment on additional reforms pertaining to autodialer traffic, intermediate providers, and on other safe harbor options and reporting requirements).

⁴⁰ See *USF/ICC Transformation Order*, 26 FCC Rcd 17890-904, paras. 702-35 (adopting new rules in part to address phantom traffic and re-emphasizing the Commission's longstanding prohibition on call blocking).

⁴¹ Call completion problems can manifest themselves in a variety of ways, including lengthy periods of dead air on the calling party's end after dialing a number, audible ringing tones on the calling party's end when the called party's telephone never rings at all, false busy signals, inaccurate intercept messages, the inability of one or both parties to hear the other when the call does go through, and calls simply not arriving at their destinations. See *Developing a Unified Intercarrier Compensation Regime, Establishing Just and Reasonable Rates for Local Exchange Carriers*, CC Docket No. 01-92, WC Docket No. 07-135, Declaratory Ruling, 27 FCC Rcd 1351, 1356, para. 12 n.37 (Wireline Comp. Bur. 2012) (*2012 Call Completion Declaratory Ruling*); see also *RCC Order* at para. 1 (stating such failures include "causing rural businesses to lose customers, cutting families off from their relatives in rural areas, and creating potential for dangerous delays in public safety communications in rural areas").

⁴² See, e.g., *RCC Order*, 28 FCC Rcd at 12563-64, paras. 16-17 (stating that "call completion problems may arise from the manner in which originating providers set up the signaling and routing of their calls, and that many of these call routing and termination problems can be attributed to intermediate providers. . . . The prevalence of these problems accords with providers' incentives to engage in blocking or degrading traffic, or similar behavior, in an effort to minimize their intercarrier compensation payments, which has been long recognized by the Commission."); see also *2012 Call Completion Declaratory Ruling*, 27 FCC Rcd at 1354, para. 12; *USF/ICC Transformation Order*, 26 FCC Rcd at 17894, para. 711 (discussing calling party number manipulation).

44. The record demonstrates that commenters are concerned about how the experiments will impact routing database functions.⁴³ Several commenters argue that applicants need to work together to agree on key technical issues and develop methods to assure prompt restoration of any service problems.⁴⁴ ATIS asserts that multiple entities usually will be involved in handling calls and, therefore, coordination in routing is a prerequisite to successful call completion.⁴⁵ It will therefore be useful for the Commission to know of any key technical issues an applicant's experiment is likely to raise and the plan for resolving such issues.

IV. CUSTOMER NOTICE FOR SERVICE-BASED EXPERIMENTS

45. Today's Order emphasizes the importance of notice requirements in the context of service-based experiments and adopts a presumption that experiments will comply with all existing customer and notice of network change requirements. It also encourages applicants to do more – to take advantage of this historic opportunity to educate customers about next generation technology,⁴⁶ and fairly present any potential trade-offs that might accompany a technology transition.⁴⁷ We provide additional guidance here on what factors will be important to the Commission's consideration of proposals with respect to customer notice requirements.

46. *Notice to Customers.* It will be critical to the Commission's evaluation of any proposal to understand how applicants will provide their customers adequate notice of and information about the experiments.⁴⁸ For example, we require applicants to demonstrate that they will provide notice of: the nature of any relevant network changes; whether customers may opt in or opt out of the experiment after it has begun; the timing of any changes; what features of the provider's existing technology will no longer be available on the new technology and how that may impact third-party devices and services the customer uses (e.g., medical monitoring services); how the provider's services will change including any differences in prices, terms and conditions; where a customer may go for more information; and any other details regarding the experiment that likely will be of relevance to customers. The Commission will also

⁴³ See ATIS Comments, GN Docket No. 13-5, at 10-11 (stating that certain existing TDM networks and functions will continue to operate until the migration to IP is complete and therefore, any new databases or modifications to existing databases should accommodate the need for a dual mode (TDM and IP) telephone routing environment until such time that every telephone number can route successfully in an all-IP environment). See also WTA Comments, WC Docket No. 12-353, at 16-18 (noting that a TDM-to-IP transition is also likely to affect various databases and other arrangements for the identification, routing, and completion of traffic); Shockey Consulting Reply, GN Docket No. 13-5, at 10 (stating that the "decision on what modifications to existing databases are needed or what new databases should be defined should the next phase of the NANP/PSTN Transition"); HyperCube Comments, WC Docket No. 12-353, at 11 (stating such databases include the LERG Routing Guide, the Line Information Database (LIDB), the NPAC number portability database, and the 800/SMS database); iconectiv Comments, GN Docket No. 13-5, at 2 (recommending that the Commission can leverage their existing products and databases to provide useful trial data for routing efficiently and quickly).

⁴⁴ HyperCube Comments, GN Docket No. 13-5, at 16-23; see also Sprint Nextel Comments, GN Docket No. 13-5, at 14-16; IntelPeer Comments, GN Docket No. 13-5, at 9; T-Mobile USA, Inc. Comments, GN Docket No. 13-5, at 12-14; NECA and OPASTCO Comments, WC Docket No. 12-353, at 11-12; NECA, NTCA, WTA & ERTA Reply, WC Docket No. 12-353, at 3.

⁴⁵ See Alliance for Telecommunications Industry Solutions, Intercarrier Call Completion/Call Termination Handbook 16, Section 4.3 (2012) (ATIS Handbook), <https://www.atis.org/docstore/product.aspx?id=26780> (last visited Dec. 3, 2013).

⁴⁶ By analogy, we refer to the extensive consumer education efforts undertaken as part of the transition from analog to digital television. See 47 C.F.R. §§ 27.20, 54.418, 73.674, 76.1630.

⁴⁷ See AT&T Reply, WC Docket No. 12-353, at 7-9 (stating that pre-migration notice to their own end-user customers are among the operational issues that experiments will address).

⁴⁸ Western Telecomm. Alliance Comments, WC Docket No. 12-353, at 12-14; Free State Comments, WC Docket No. 12-353, at 3, 10.

find valuable to its evaluation information about the manner in which notice will be conveyed, such as its timing, content, format, and/or location.⁴⁹ To ensure a complete record, we also expect applicants to notify their customers that the experiment is being conducted with Commission oversight, that the Commission encourages customers to provide feedback in this docket, and to provide the customers with instructions for doing so.

47. *Notice of Network Changes.* Section 251(c)(5) of the Act requires that an incumbent LEC “provide reasonable public notice of changes in the information necessary for the transmission and routing of services using that local exchange carrier’s facilities or networks, as well as of any other changes that would affect the interoperability of those facilities and networks.”⁵⁰ The Commission has adopted rules to implement this statutory requirement.⁵¹ The Commission will look for confirmation that applicants will comply with the notice of network changes rules during these experiments.

V. DATA COLLECTION AND REPORTING EXPECTATIONS

48. Today’s Order summarizes principles for data measurement, collection, and reporting for service-based experiments. The issues set forth in Part III.G of the Order will be critical to the Commission’s evaluation of any proposal. We provide additional guidance on what data measurement and reporting the Commission will take into account in evaluating any proposal.

49. It will be important to the Commission’s evaluation of proposals to understand each data type to be collected in an experiment and how it relates to the enduring values embodied in the statute. Below, we suggest various categories of data that might be reasonable to measure, depending on the specific nature of the experiment proposed. For each data type, the Commission will find it useful to understand whether data will be collected in the experiment or non-experiment areas or both. If the proposed data type is only relevant to the experiment area, the Commission will need to understand to what the data will be compared. We do not necessarily expect experiments to collect all these data and we welcome ideas on other useful data that should be collected in a particular experiment.

50. *Accessibility and Consumer Experience.* While understanding consumer experiences with the transition is essential to the success of the experiments, we recognize that there are myriad ways to collect data about these experiences. For instance, the experiment might use a consumer survey to ask residential and enterprise customers about their satisfaction with and use of the technology. In reviewing proposals, it will be critical for the Commission to understand, in detail, how applicants propose to collect such data, including the impact of the transition on people with disabilities and other specific populations, such as consumers living on Tribal lands. We anticipate that the Commission would consider how the applicant would track consumer complaints (including, for example, explanations of whether the

⁴⁹ We emphasize that participants must comply with discontinuance, reduction, or impairment of service requirements set forth in section 214 of the Act and the Commission’s implementing rules, including sections 63.63 and 63.71. *See* 47 U.S.C. § 214; 47 C.F.R. §§ 63.63, 63.71.

⁵⁰ 47 U.S.C. § 251(c)(5).

⁵¹ *See* 47 C.F.R. §§ 51.325-35. Network changes announced in notices to the public six or more months before a proposed implementation date may occur without the need for comment from potentially affected parties. *See, e.g.,* 47 C.F.R. § 51.331(a). However, network changes involving short-term notice given less than six months before a proposed implementation date, must include disclosure to affected parties, *and* the effective date is subject to comment from those information service providers or telecommunications service providers that directly interconnect with the ILEC’s network. *See* 47 C.F.R. § 51.333(a)-(c). Such changes shall not be deemed final or accepted until a certain time after the Commission’s release of a public notice seeking comment on the proposed change(s). *See* 47 C.F.R. § 51.333(b)-(c) (indicating that objections may be filed no later than the ninth business day, short term notices will be deemed final on the tenth business day, and notices of replacement of copper loops or copper subloops with FTTH loops or FTTC loops will be deemed approved on the 90th day after the release of the Commission’s notice, unless objections are filed).

complaints were due to technical problems, consumer confusion, or dissatisfaction with service quality or concern about disparity between previous service and the new service).⁵²

51. *Control Groups and Statistical Relevance.* In the Order, we state that we expect each proposal to provide a “control group” by which to evaluate the performance of the “experimental group,”⁵³ unless the nature of the proposal would not accommodate a control group.⁵⁴ For example, an applicant could propose supplying data on its own non-experimental areas so the Commission can match the experiment group areas with non-experiment group areas, or, depending on the metric at issue, perhaps could specify a third-party data source as a control group. We expect the Commission will need to understand how to ensure the selection of the control group does not produce misleading or biased results.⁵⁵ More generally, it will inform the Commission’s review to understand how the data collection methodology will mitigate concerns that providers have strong incentives to behave differently under experimental conditions than otherwise, which could skew the data collected.⁵⁶ For example, proposals might explain how data collected in experiment areas could serve as benchmarks for assessing post-experiment performance.

52. It will also be important for the Commission to understand whether the data would be suitable to make statistical inferences about the performance of the experiment areas. We expect the following questions to be key: How frequently will data be collected and will the complete data be time series, panel, or cross-sectional in nature?⁵⁷ What types of statistical analyses will be used and will the sample and design provide sufficient statistical power for the Commission to learn useful information from the experiment? If only a small number of experimental units will be involved, how will the data be analyzed so that meaningful quantitative conclusions are possible? How long will the applicant keep the data? Will the data enable us to evaluate the impacts of particular technologies, such as fixed wireless service offerings? Will the data be submitted to the Commission, and if so, in what form and how frequently? We presume that a control group will be within the same geographic area, such as a wire center, as the experimental group.

⁵² This could include data from CDR (Call Data Records) or CMR (Call Maintenance Records). *See, e.g.,* Cisco, Call Detail and Call Management Records, in Troubleshooting Cisco IP Phone-to-Cisco IOS Gateway Calls, http://www.cisco.com/en/US/docs/voice_ip_comm/cucm/trouble/3_1_1/TrblD.html (last visited Dec. 12, 2013).

⁵³ *See Lifeline and Link Up Reform and Modernization; Lifeline and Link Up; Federal-State Joint Board on Universal Service; Advancing Broadband Availability Through Digital Literacy Training*, WC Docket Nos. 11-42, 03-109, 12-23, CC Docket No. 96-45, Report and Order and Further Notice of Proposed Rulemaking, 27 FCC Rcd 6656, 6795, para. 326 (2012) (emphasizing the value of control groups). The Commission is open to suggestions about how to select each group, however, *a priori* we favor a transparent process and believe random selection of some type is likely the best choice for mitigating bias and strengthening credibility. For a non-technical discussion of the value of random selection, consult Michael Abramowicz, Ian Ayres, & Yair Listorkin, *Randomizing Law*, 159 U. Pa. L. Rev. 929, 934-38 (2011).

⁵⁴ We anticipate that the vast majority if not all experiments will be able to accommodate a control group, but we do not want to foreclose a valuable experiment on the basis that it cannot provide data from a control group.

⁵⁵ We encourage providers to work with agency staff in designing their data collection.

⁵⁶ *See Cox Comments*, GN Docket No. 13-5, at 5 (“Knowledge that a trial is intended to address these particular regulatory issues would give participating parties significant incentives to manipulate events to achieve desired regulatory results.”); *CBeyond et al. Comments*, GN Docket No. 13-5, at 17. *But see AT&T Dec. 20 Ex Parte Letter* at 1 (stating that “AT&T intends to select locations for the service-based experiments that represent the challenges it will face with the transition and conduct an extensive review of the services to be impacted as part of this experiment”).

⁵⁷ For an overview of these data structures, see Jeffrey M. Wooldridge, *Econometric Analysis of Cross Section and Panel Data P1* (MIT Press 2d ed. 2002).

53. *Disabilities Access.* In reviewing proposals, it will be important for the Commission to understand the data applicants intend to collect and submit on accessibility challenges and improvements that are realized through network changes made during the experiment.

54. *Interconnection.* It will also be important for the Commission to understand what information about VoIP interconnection arrangements applicants will report, including the number of interconnections, the identities of interconnecting entities, requests for interconnection, time to reach agreement in negotiations, issues disputed in negotiations, and copies of any interconnection agreements.

55. *Public Safety, Law Enforcement, Cybersecurity, and National Security.* A transition may impact many dimensions of public safety, law enforcement, cybersecurity, and national security. Data should measure the transition's impact on government functions (e.g., police, fire, Emergency Medical Services (EMS), or the Federal Aviation Administration (FAA) or Department of Defense (DoD)), consumers' ability to access 911 and other emergency services, other public safety and security requirements currently performed by traditional PSTN systems, including 911 calls; CALEA requirements; internally and externally caused network outages or disruptions to service; and ability to meet cybersecurity or other threats and disasters.

56. *Performance of IP Infrastructure.* The performance of the IP infrastructure can be determined by classical IP measurement metrics, including latency, jitter, packet loss, and data rate. Services such as VoIP have generally-accepted IP network performance requirements to provide acceptable service levels. These acceptable service levels translate into customer voice call experience satisfaction and/or dissatisfaction. A recent Commission order defined a requirement that specifies a latency target for a provider's network to meet from the customer premise to a major Internet Exchange Point.⁵⁸ It will be important for the Commission to understand the specific types of measurements proposed, how measurements could be accomplished, sample size, frequency, geographic and/or network dispersion of sample points, the use of existing performance measurement and Network Management Systems (NMS) capabilities, and the objectives that should be met by these metrics.

57. *Availability of IP Infrastructure.* Beyond the performance of the IP infrastructure, in reviewing proposals, the Commission will be aided by an understanding of IP Infrastructure availability. Availability is made up of numerous components,⁵⁹ systems, and processes. Backup, Fail-over (stateful, non-stateful, hot-standby, etc.), MTBF (Mean Time Between Failure), MTTR (Mean Time To Repair), Redundancy, Stand-by power, Multiple paths, Dual-homing, DNS security and redundancy and more can be combined to make IP networks highly available.

58. *Services on IP Infrastructure.* It will be critical for the Commission's evaluation of a proposal to be able to identify and understand all differences in what services are available to customers that participate in the experiment and what services are available outside of the experiment. That understanding of service differences should include changes in how services are offered (e.g., previously offered on stand-alone basis and offered during the experiment only as part of a bundle), price or rate-structure changes, or differences in equipment necessary to obtain the full benefits of the service.⁶⁰ The

⁵⁸ *Connect America Fund*, WC Docket No. 10-90, Report and Order, 28 FCC Rcd 15060, 15068-75, paras. 19-36 (Wireline Comp. Bur. 2013).

⁵⁹ Reliability of equipment and systems, while important, is not availability. See James Sonderegger, Orin Blomberg, Kieran Milne & Senad Palislamovic, JUNOS High Availability xix (O'Reilly Media, Inc., 2009) ("User experience is reality. This reality means that neither component nor system levels are appropriate points to measure availability. Relying on hardware availability as a measure of system, service, and enterprise availability ignores the importance of network architecture planning and site design, effective monitoring, and a highly trained and proactive support staff. In the modern world of constant transactions, it is the services and the enterprise that must be available 99.999999% of the time.").

⁶⁰ We anticipate that different services might include changes in availability of facsimile capability, security and medical systems, alerts and monitoring services, DVR services, credit card billing, 800 number service, ability to

(continued....)

Commission will also find important an ability to identify any services that are available only as part of the experiment.

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making 500, 700, 900, 950, 976 calls, making calling card or dial around calls, abbreviated dialing, ability to reach an operator by dialing “0”, ability to accept collect calls or third-number billed calls, caller ID/spoofing, ankle bracelets, SMS notification services, *etc.* See *supra* Appx. B, Section II.C (Technical Parameters and Timeline).

**STATEMENT OF
CHAIRMAN THOMAS E. WHEELER**

Re: *Technology Transitions*, GN Docket No. 13-5; *AT&T Petition to Launch a Proceeding Concerning the TDM-to-IP Transition*, GN Docket No. 12-353; *Connect America Fund*, WC Docket No. 10-90; *Structure and Practices of the Video Relay Service Program*, CG Docket No. 10-51; *Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities*, CG Docket No. 03-123; *Numbering Policies for Modern Communications*, WC Docket No. 13-97.

Our communications are rapidly transitioning to IP-networks – and that’s a good thing. The move from the circuit-switched networks of Alexander Graham Bell to the new networks of the Internet Revolution is all around us – with expanded deployment of fiber, with new forms of wireless, with bonded copper and coaxial cable. These transitions – plural – are a good thing because IP networks are more efficient, which can enable better products, lower prices, and massive benefits for consumers.

But today’s transitions are all about the voluntary adoption of new supplemental services. Now, America’s largest telecommunications networks have said that they want to engage in a very different kind of transition – a moment when they will seek our permission to turn off their legacy networks and when their customers would lose a choice that they have had for generations.

It is the prospect of that mandatory moment that we confront today.

At this critical juncture, let me be clear about a few things. One, we favor technological innovation. And, two, we affirm the enduring values of the Network Compact: universal service, public safety, competition and consumer protection.

Our challenge is to preserve the values that consumers and businesses have come to expect from their networks, while unleashing new waves of investment and innovation, which will deliver untold benefits for the American people.

Today’s order kickstarts this national dialogue.

First, we invite service providers to propose voluntary experiments in the deployment of IP-connected networks. I believe that such voluntary experiments, through the use of carefully-constructed control groups, can tell us how IP networks impact users – and this is the only purpose of these experiments. How will households reach 911, which they must? How will small businesses continue to reach their customers, which they must? Will competition be maintained? How will people with medical monitoring devices or home alarms know that they will always be connected to a reliable network, which they also must be able to do?

Here Commissioner Rosenworcel deserves special thanks. It is her formulation of the enduring values of universal service, public safety, competition and consumer protection that anchor the networks of our future in the bedrock expectations of today.

Second, we authorize the solicitation of targeted experiments that focus on universal access. These proof-of-concept initiatives will help us understand where new technology can be developed, for example for individuals with disabilities.

And they will help us understand what kinds of networks can best serve rural America – a place that is not only more sparsely populated but also older and poorer than the rest of our nation.

We cannot be a nation of opportunity without networks of opportunity. This pilot program will help us learn how fiber might be deployed where it is not now deployed; how anchor institutions – including schools and libraries – can harness demand for the greater good of an entire community; and how new forms of wireless can reach deep into the interior of rural America.

I'm particularly proud of the role that Commissioner Clyburn has assumed. She has been a passionate advocate for greater access to healthcare technologies, and she will undertake an effort to ensure that our rural pilot programs include exploration of the best ways to improve the healthcare services available to rural communities.

Although we do not now today authorize specific levels of funding for these rural pilot programs, we have already heard from many who wish to participate. In this order we ask them to come forward in the coming weeks, so that we can decide the appropriate level of funding and focus national attention on how to best bring robust broadband to all of America.

Finally, let me note the work that needs to be done. We must answer the very big legal and policy questions that are raised by the IP transitions. "Enduring values" tend to be thought of in consumer-facing terms. But inherent in the transitions and trials is the maintenance of competition and the relationship between networks that allows that to happen, including critical questions of competition. That's why I've asked for a managerial framework this spring that will provide guidance on how and when these questions will be resolved.

I congratulate the Technology Transitions Policy Taskforce for its extraordinary work over the past year. Since its creation in December 2012, the Task Force has mustered the resources and knowledge necessary to prepare us for today's action. Congratulations to all of the staff who worked so hard in these efforts, and especially those who set the stage for action before my arrival.

With the adoption of today's Order, it is now time for the next step. As I have said before, it is the Bureaus and Offices that should be the first stop for operational outcomes and policy creation.

That's why I have decided to replace the Task Force with a "mesh network" of Bureau and Office activities, including joint activities. Through this approach the Commission will enjoy the advantages of coordination and leadership that the Task Force provided, while moving the work of the Bureaus and Offices to the front and center, where they belong.

Specifically, I have asked my key staff to proceed as follows:

- The Wireline Competition Bureau, led by Julie Veach, will own the administration of both service and the rural broadband experiments. The Bureau has suggested, and I agree, that it should form a steering committee to include representatives from the Public Safety Bureau, the Wireless Bureau, the Consumer and Governmental Affairs Bureau, the Office of Strategic Planning, the Office of Engineering and Technology, and the Office of General Counsel to guide its oversight of the experiments. That will include specific responsibilities for Public Safety and Wireless, as noted below. Legal approvals necessary to the implementation, duration or operation of experiments will be processed in the ordinary course of business.
- Jon Sallet and OGC will lead the strategic path forward, including the creation of a managerial framework that will chart the process by which the Commission will decide the large-scale legal, regulatory and policy issues arising from the IP transitions.
- Jonathan Chambers, with the support of OSP, including Henning Schulzrinne, will be responsible for the R&D efforts identified in today's Order, as well as the continuing creation of innovation policy. OSP will also assist WCB in recruiting participants in the experiments, and will work with WCB and OGC to develop procedures for the selection of participants in the rural broadband experiment. OSP will be jointly responsible with CGB for the implementation of data-collection efforts associated with the Order.
- David Simpson and the Public Safety and Homeland Security Bureau will provide subject-matter expertise for all public-safety issues associated with the implementation of the Order.

- Roger Sherman and the Wireless Bureau will provide subject-matter expertise for all wireless issues, including the deployment of fixed wireless systems, associated with the implementation of the Order.
- Kris Monteith and the Consumer and Governmental Affairs Bureau will work with OSP on implementation of data-collection efforts associated with the Order.
- I will be looking to Julie Knapp and OET to be involved in engineering issues that will inevitably arise during the experiments, even though their focus is on the impact on consumers and customers, rather than technology by itself.
- Because of the importance to our economy of the IP transitions, I have asked Mindel DeLaTorre of the International Bureau to provide an international benchmark of how U.S. efforts compare to progress towards IP transitions globally.

I am confident that these efforts, which must be integrated with each in order to be the most impactful and strategic, will provide the Commission with the leadership required to effectuate our IP policies.

**STATEMENT OF
COMMISSIONER MIGNON L. CLYBURN**

Re: Technology Transitions, GN Docket No. 13-5; AT&T Petition to Launch a Proceeding Concerning the TDM-to-IP Transition, GN Docket No. 12-353; Connect America Fund, WC Docket No. 10-90; Structure and Practices of the Video Relay Service Program, CG Docket No. 10-51; Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities, CG Docket No. 03-123; Numbering Policies for Modern Communications, WC Docket No. 13-97.

I say this quite often when it comes to technology that this is an exciting time to be in this space. While walking the floor at the Consumer Electronics Show (CES) earlier this month, I had a first-hand view of new and innovative products that are game-changing, mind boggling, and life-altering. Full color, 3-D printed confections (yes, I am still a bit fixated on customized sweets), a device that augments previously inaudible sounds which could help wounded soldiers improve their hearing and quality of life. The concept cars of yesterday are the smart cars of today and hold the promise of saving lives and avoiding collisions. Technological advancements and innovation abound with limitless potential.

I am proud to say that during my tenure, the Commission has taken a number of actions to promote investment and innovation in this area. The National Broadband Plan will celebrate its fourth anniversary in March. It set forth a blueprint for the nation to move from legacy telephone services to the broadband enabled era in all sectors, including health and education, and recommended that the Commission update its policies to promote and reflect IP networks.

Today's action, is another in a series that the Commission has undertaken to implement many of these recommendations, including the landmark, bipartisan reform of universal service and intercarrier compensation. In acting on these recommendations the Commission found that these legacy systems not only were subsidizing services of a bygone era, but also were deterring the transition to IP networks. The Commission provided a path to "promote innovation by eliminating barriers to the transformation of today's telephone networks into the all-IP broadband networks of the future."¹

In the two years since the Commission adopted the *USF/ICC Transformation Order*, providers have increased their deployment of IP equipment and facilities so much so that today we launch a process for interested parties to submit proposals for experiments, which would shift entirely away from legacy equipment and facilities. I am pleased that the Order recognizes what I have maintained all along – that the core values embodied in the Communications Act – competition, consumer protection, universal service and public safety, do not change as technologies evolve, and must guide the Commission's process going forward. While the transition holds potential for the introduction of next generation 911, with features such as video call and more reliability and redundancy, there is also a risk of unintended consequences for consumers, public safety, and competition. The parameters for these experiments, including protections for these core values as well as the means to identify data that would be useful for experiments should provide the Commission and the states information needed to make decisions going forward. I am also pleased that the Order instructs the Commission to consult with states and Tribal governments in geographic areas where entities propose a trial.

¹ See *Connect America Fund; A National Broadband Plan for Our Future; Establishing Just and Reasonable Rates for Local Exchange Carriers; High-Cost Universal Service Support; Developing an Unified Intercarrier Compensation Regime; Federal-State Joint Board on Universal Service; Lifeline and Link-Up; Universal Service Reform – Mobility Fund*, WC Docket Nos. 10-90, 07-135, 05-337, 03-109, GN Docket No. 09-51, CC Docket Nos. 01-92, 96-45, WT Docket No. 10-208, Report and Order and Further Notice of Proposed Rulemaking, 26 FCC Rcd 17663, 17680 para. 648 (2011) (*USF/ICC Transformation Order*), *pets. for review pending sub nom. In re* FCC 11-161, No. 11-9900 (10th Cir. filed Dec. 8, 2011).

At the same time, we must acknowledge that not everyone in this country has the luxury of being able to take advantage of those products, devices and applications I saw at CES. Most of us in this room are fortunate to have the ability to be the first adopters, but millions cannot because they live in rural areas. Millions more have access but cannot afford to do so. The Commission has a duty as provided in section 254 of the Telecommunications Act to close digital divides and ensure that all Americans, including low-income consumers and those in rural, insular and high cost areas have access to advanced telecommunications and information services reasonably comparable to those in urban areas.

I remain firmly committed to ensuring that the Commission lives up to this Congressional mandate, and I believe the rural broadband trials in the Order and Further Notice could be a vehicle to help achieve these goals. The *USF/ICC Transformation Order* sets up a process to give incumbent carriers the right of first refusal to accept or decline state-wide support using a forward-looking cost model to provide broadband and voice to unserved areas. The Commission sought comment on the competitive process for the distributing Connect American Fund Phase II support in areas where the incumbent declines its right of first refusal. These rural broadband trials could help facilitate the Commission's ability to structure the competitive process, while the Order makes clear that the distribution of Phase II support under the forward-looking model continues on a parallel track without delay.

These rural broadband experiments and the technology transitions, present an incredible opportunity to explore how best to achieve the Commission's goals adopted in the *USF/ICC Transformation Order* of "ensur[ing] universal availability of modern networks capable of providing voice and broadband service to homes, businesses, and community anchor institutions."² Connecting anchor institutions was something I strongly advocated leading up to the adoption of the *USF/ICC Transformation Order*. I believe the Commission should leverage the Connect America Fund to achieve all of our obligations in section 254 including serving rural and low-income consumers, and connecting anchor institutions and health care facilities. This Order invites experiments to further explore these issues, to ensure that the goals of connecting anchor institutions in the *USF/ICC Transformation Order* are realized.

I appreciate the support of my request for comment on healthcare broadband experiments which could ensure that consumers and health care providers in rural areas have access to advanced telemedicine and other remote monitoring services. Technological advancements are transforming the delivery of healthcare, and some Americans stand to be left behind because they either lack access, or the means, to these services. I believe our universal service mandate includes ensuring that consumers have access to these advanced services, and hope to work with the Chairman and my colleagues to move quickly to adopt an order approving these healthcare trials.

With regard to disabilities access, I am excited that the Order adopts the \$3 million budget proposed in the Video Relay Services Reform Order for research focusing on the impact of IP-based technologies and services for persons with disabilities. The goal is to ensure, that the Telecommunications Relay Services, offer functionally equivalent voice services, and improve the efficiency and availability of TRS. Research here could focus on the specific needs of this community including effects on different demographics, and the relationship with health care. The technology transitions have opened tremendous doors and opportunities for persons with disabilities and I strongly encourage all interested parties to submit research proposals for the Commission's consideration to evaluate how to improve our TRS services.

² *USF/ICC Transformation Order*, 26 FCC Rcd at 17873, para. 48.

Finally, I am pleased my colleagues agreed with my suggestion to seek the input of the Federal-State Joint Conference on Advanced Telecommunications Services a request to help improve the Commission's own consumer complaint processes, by learning best practices from the states. I believe we can learn from our state partners, particularly on consumer complaints, something that states know very well.

This item is comprehensive in scope, and I want to thank the Chairman for his leadership, and the dedicated team of public servants, who worked so diligently. While the list includes many talented staff in virtually all of the Commission's Bureaus and Offices, allow me to specifically thank, Jonathan Sallet, Stephanie Weiner, Jonathan Chambers, Nick Alexander, Matthew Quinn, Julie Veach, Carol Matthey, Tim Stelzig, Admiral David Simpson, and Henning Schulzrinne.

**STATEMENT OF
COMMISSIONER JESSICA ROSENWORCEL**

Re: *Technology Transitions*, GN Docket No. 13-5; *AT&T Petition to Launch a Proceeding Concerning the TDM-to-IP Transition*, GN Docket No. 12-353; *Connect America Fund*, WC Docket No. 10-90; *Structure and Practices of the Video Relay Service Program*, CG Docket No. 10-51; *Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities*, CG Docket No. 03-123; *Numbering Policies for Modern Communications*, WC Docket No. 13-97.

Communications networks are changing at a blistering pace. Nothing demonstrates the speed and scope of this change like some simple raw numbers. At the turn of the millennium, we had roughly 200 million switched access lines—or traditional phone lines. By the start of this year, we had only 96 million. On top of that, we had 42 million VoIP lines—an increase of nearly 80 percent since 2008. Add to this the fact that two in five households have now cut the cord and only use a wireless phone—and you get a sense of the change that is roiling our communications landscape.

Grappling with so much change is neither simple nor easy. The task is big, so here we start small. We start in what I like to think of as the sandbox.

Software developers often code sandboxes into their programs. This code allows others access to a portion of the program without harming the host platform. It provides an opportunity to experiment within the program, minimizing risk before introducing ideas at broader scale.

Sandbox thinking is popular among start-ups in Silicon Valley. But why not put it to use in Washington? After all, testing big ideas in a small way is a good way to understand the consequences of our policy choices—and the impact they have on consumers—before unleashing them in the world at large.

That is what we do here, by inviting a range of sandbox trials to assess how to migrate the networks we rely on today to the digital possibilities of tomorrow. I think this is the right approach for the IP transition issues before this Commission. So our work here has my support.

But as we navigate these changes with our eyes firmly on the future, our efforts must be informed by the values of our past. As I have suggested from the start, there are four enduring values in communications law—public safety, universal access, competition, and consumer protection. These are our guideposts in everything we do. Technology changes, but our values do not. So I thank the Chairman and my colleagues for including this framework in the work we do here.

Ultimately, we will need to take these values and build beyond sandbox experimentation. I am confident that we will find technology is up to the task. I am also confident that smart policy experts at the federal and state level can craft a framework that inspires investment in digital age infrastructure. But I think we must be mindful of the impact this transition has on consumers—their needs, their expectations, and their willingness to embrace network change. Going forward, I believe all stakeholders have work to do.

Finally, I want to thank the Chairman for tackling this issue with gusto and speed. Big change is already underway. It is time to wrestle with it and make sure our new networks yield new possibilities for everyone. Thank you also to the many Bureaus and Offices that contributed to this effort today and undoubtedly will help us navigate these issues in the future.

**STATEMENT OF
COMMISSIONER AJIT PAI**

Re: *Technology Transitions*, GN Docket No. 13-5; *AT&T Petition to Launch a Proceeding Concerning the TDM-to-IP Transition*, GN Docket No. 12-353; *Connect America Fund*, WC Docket No. 10-90; *Structure and Practices of the Video Relay Service Program*, CG Docket No. 10-51; *Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities*, CG Docket No. 03-123; *Numbering Policies for Modern Communications*, WC Docket No. 13-97.

The IP Transition is upon us. Each year, millions of Americans are leaving the public-switched telephone network (PSTN), instead opting for IP-based services. Indeed, the American people are leading the way to the all-IP future. This is good news. IP networks provide better service quality and increased network capacity. They hold the promise of more effective emergency response through Next Generation 911, better healthcare through telemedicine, and improved educational outcomes through distance learning.

Almost a year ago, I called on the Commission to move forward with an All-IP Pilot Program, one that would give forward-looking companies a path to turn off their old TDM electronics in a discrete set of wire centers and migrate customers to an all-IP platform.¹ Why? Because we cannot continue requiring service providers to invest in both old networks and new networks forever. Every dollar that is spent maintaining the networks of yesterday is a dollar that can't be invested in the networks of tomorrow. And our goal should be to maximize investment in IP infrastructure so that high-speed broadband extends to every corner of our country.

But we cannot just turn off the PSTN overnight. Instead, we need to beta test the concept first. We need to see what works and what doesn't. Albert Einstein had it right: A "pretty experiment is in itself often more valuable than twenty formulae extracted from our minds." With real-world experience and hard data in hand, we will be much better positioned to make the broader transition to an all-IP future.

I am therefore pleased that today's order adopts an All-IP Pilot Program consistent with the four principles I set forth last year. *First*, carrier participation should be voluntary—and today, we announce that "[n]o provider will be forced to participate in an experiment."² *Second*, trials should reflect the geographic and demographic diversity of our nation—and today, we "seek experiments that cover areas with different population densities and demographics, different topologies, and/or different seasonal and meteorological conditions."³ *Third*, no one can be left behind—and today, we declare that "no consumer [may] lose[] access to service or critical functionalities"⁴ and that residential and business customers must receive "clear, timely, and sufficient notice of any service-based experiment."⁵ And *fourth*, we must be able to evaluate an all-IP trial with empirical data—and today, we seek "experiments that collect and provide to the Commission data on key attributes of IP-based services."⁶ With these core principles in place, I am optimistic that the trials will be a success.

¹ Remarks of FCC Commissioner Ajit Pai, "Two Paths to the Internet Protocol Transition" at 5 (Mar. 7, 2013), available at <http://go.usa.gov/B4gB>.

² Order at para. 32.

³ Order at para. 30.

⁴ Order at para. 54.

⁵ Order at para. 70.

⁶ Order at para. 74.

I am especially happy that today's order moves forward with the All-IP Pilot Program on a unanimous, bipartisan basis. As I said last year, this isn't an issue that divides the left from the right or Republicans from Democrats. And accordingly, the order reflects our consensus that companies should have the opportunity to go all-IP. What is more, today's order demonstrates that reaching an agreement does not mean compromising your values. Even if each of us would have preferred a somewhat different order, we were able to work collaboratively and meet in the middle—a testament to good government, and one that hopefully bodes well as we continue moving to an all-IP future.

Speaking of compromise, I appreciate the willingness of my colleagues to make clear that the rural broadband experiments proposed in this item will not undermine—and just as importantly will not delay—moving forward with the second phase of the Connect America Fund to bring access to next-generation technologies to millions of rural Americans. And I welcome their willingness to propose redirecting the funding the Commission set aside in 2012 for a skilled nursing facility program.⁷ I dissented from establishing that program and said at the time that it was unlawful and a mistake.⁸ I hope that the record will help steer us toward a more constructive use of that funding.

Finally, today's order is just one step on the path to an all-IP future. We are only beginning to embrace the IP Transition. We must still repeal the many outdated rules on our books based on the principles of 19th century railroad regulation. We must still press forward with the consumer protections that will remain necessary in an all-IP world. We must still revisit and revise the architecture of the telephone network, following up on our recently completed VoIP numbering trials. And we must still turn to Congress for further guidance on our role in the 21st century communications marketplace. In other words, there is still much to be done on the IP Transition, and I am looking forward to doing it.

⁷ See *Rural Health Care Support Mechanism*, WC Docket No. 02-60, Report and Order, 27 FCC Rcd 16678, 16816–18, paras. 346–50 (2012).

⁸ *Id.* at 16919 (Statement of Commissioner Ajit Pai, Approving in Part and Dissenting in Part).

**STATEMENT OF COMMISSIONER MICHAEL O'RIELLY
APPROVING IN PART, CONCURRING IN PART**

Re: *Technology Transitions*, GN Docket No. 13-5; *AT&T Petition to Launch a Proceeding Concerning the TDM-to-IP Transition*, GN Docket No. 12-353; *Connect America Fund*, WC Docket No. 10-90; *Structure and Practices of the Video Relay Service Program*, CG Docket No. 10-51; *Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities*, CG Docket No. 03-123; *Numbering Policies for Modern Communications*, WC Docket No. 13-97.

Today, the Commission is initiating a host of trials, experiments, research, testbeds, and data initiatives intended to help understand some of the implications of moving to an all IP world. While much of the discussion up until now has focused on “service-based” trials, where providers transition consumers from legacy voice technologies to modern ones, this item does much more. It launches new universal service programs. I commend the effort to tackle so many important issues, and I appreciate the tireless efforts of Commission staff throughout the process to answer my questions and accommodate my suggestions. As a result of their hard work, I approve the vast majority of this item.

Rather than walk line by line through the item, I will highlight my main thoughts on the two major parts.

To start, I approve the initiation of the proceeding to conduct service-based trials. Moving to an all IP world raises a number of questions and I hope that the trials will provide an opportunity to answer some of those questions.

I thank the Chairman that this order is also consistent with my stated criteria. It makes clear that the trials: 1) will not interfere with the natural conversions that have been occurring and will continue to occur outside of the trials; 2) will not interfere with or delay the work of the Commission; and 3) will not be binding on what is happening outside of the trials or on future decisions. The item also includes, at my suggestion, a one-year sunset date on trial initiations to ensure that these trials will be timely and relevant.

The layers of conditions and presumptions that the Commission establishes for a provider to gain approval to move forward with a service trial are numerous and complex and not what I would have written if I had the pen. I worry that with so many conditions, we are reducing the chances of companies filing proposals. If few show up to do trials, how does that help inform us? Also, many of the conditions or presumptions—such as those concerning cybersecurity—appear not to have a basis in the statute or existing Commission rules. Others seem to expand the scope of existing Commission rules.

Nevertheless, trial participation is voluntary and participants will have the opportunity to seek waivers and rebut the presumptions. I look forward to reviewing the proposals that are filed and will give thorough consideration to any requests for relief.

With respect to the section of the item that establishes rural broadband experiments, I can only concur. To be clear, I support universal service and want to ensure that all Americans have access to modern communications networks. But, as contemplated, I am concerned that these new experiments have the potential to divert universal service funding and distract the Commission from completing universal service reforms already adopted.

In 2011, the Commission unanimously voted to modernize the high-cost program so that it supports broadband-capable networks. Over two years later, the Commission still has some work to do, including implementing a Connect America Fund in rate-of-return areas, Connect America Phase II in price cap areas, the Remote Areas Fund, and Mobility Fund Phase II.

I am pleased that the order makes clear that the experiments will not delay universal service reforms established in the 2011 order. Indeed, the item commits to implementing key parts of Connect America Phase II and to addressing the challenges of providing service to remote areas by the end of this year.

While experiments could be useful to help understand whether additional providers will be interested in serving rural America—particularly in the event that a current incumbent provider chooses not to participate in the universal service program going forward—I wonder whether the experiments will instead become an opportunity to use Connect America dollars, that were intended to maximize voice and broadband coverage throughout rural and remote parts of the nation, for other policy priorities.

I am also concerned over the appearance that the Commission over-collects funding from ratepayers and then uses the reserved funding to launch pilot programs or experiments. Instead of finding new ways to spend the reserves we build up, we should determine what our universal service programs cost and set our collections accordingly so that ratepayers are not overburdened. Moreover, if programs are not operating as intended, then we should amend them through the established notice and comment rulemaking process, rather than create new pilot programs or experiments.

Moreover, I must register my opposition the use of section 706 as authority to implement the item. My thoughts about that provision are well known, and its use here is unnecessary.

Once again I thank the staff, including Jonathan Sallet, Daniel Alvarez, Stephanie Weiner, and the staff in the Bureaus, Offices, and Task Force for their helpful briefings, thorough responses, and unfailing sense of humor throughout this process.

State	County	CountyName	Census TractID
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CO	8087 Morgan	8087000300
CO	8087 Morgan	8087000600
CO	8087 Morgan	8087000700
CO	8087 Morgan	8087000800
CO	8089 Otero	8089968000
CO	8089 Otero	8089968100
CO	8089 Otero	8089968200
CO	8089 Otero	8089968300
CO	8089 Otero	8089968400
CO	8089 Otero	8089968500
CO	8091 Ouray	8091967600
CO	8093 Park	8093000100
CO	8093 Park	8093000400
CO	8093 Park	8093000500
CO	8097 Pitkin	8097000100
CO	8097 Pitkin	8097000401
CO	8097 Pitkin	8097000402
CO	8097 Pitkin	8097000500
CO	8099 Prowers	8099000100
CO	8099 Prowers	8099000600
CO	8099 Prowers	8099000700
CO	8101 Pueblo	8101002806
CO	8101 Pueblo	8101002906
CO	8101 Pueblo	8101002918
CO	8101 Pueblo	8101003106
CO	8101 Pueblo	8101003200
CO	8101 Pueblo	8101003600
CO	8101 Pueblo	8101980100
CO	8103 Rio Blanco	8103951100
CO	8103 Rio Blanco	8103951200
CO	8105 Rio Grande	8105977000
CO	8107 Routt	8107000100
CO	8107 Routt	8107000200
CO	8107 Routt	8107000300
CO	8107 Routt	8107000500
CO	8107 Routt	8107000600
CO	8107 Routt	8107000700
CO	8107 Routt	8107000800
CO	8109 Saguache	8109977600
CO	8111 San Juan	8111972600

CO	8113 San Miguel	8113968101
CO	8113 San Miguel	8113968102
CO	8113 San Miguel	8113968103
CO	8113 San Miguel	8113968200
CO	8115 Sedgwick	8115968300
CO	8117 Summit	8117000100
CO	8117 Summit	8117000200
CO	8117 Summit	8117000300
CO	8117 Summit	8117000402
CO	8119 Teller	8119010105
CO	8119 Teller	8119010106
CO	8119 Teller	8119010202
CO	8121 Washington	8121924100
CO	8121 Washington	8121924200
CO	8123 Weld	8123002501
CO	8123 Weld	8123002502
CO	8125 Yuma	8125963100
CO	8125 Yuma	8125963200

Eligible High Cost Locations	Extremely High Cost Location	Annual Support
301	41	296388.29
88	2	96331.64
1	1	243889.92
240	51	449406.18
745	408	235809.81
153	82	114115.85
628	201	394886.49
16	0	3052.08
449	2	90883.77
7	1	874.28
283	35	106437.47
92	11	24321.15
5	5	0
30	2	5292.26
97	7	37653.69
345	86	145539.44
458	160	272995.83
1186	212	1261758.14
16	15	1278.64
627	241	243682.34
47	6	45117.33
589	218	214794.82
39	20	88908.02
79	21	31635.72
3	3	3215.94
35	14	24760.1
83	15	330254.45
101	31	37796.8
14	14	259.76
10	1	37580.19
2	0	232.35
8	3	8978.83
24	0	1942.34
568	142	304317.43
77	15	41798.63
1	0	1474.09
38	9	20214.01
2	0	1486.72
33	8	19949.84
7	0	118.51
25	4	11919.58
7	0	2061.06
1644	267	824316.79
3	0	1117.49
46	8	52107.88
45	12	24244.91
70	48	10543.16
16	1	7824.33

3	0	2200.41
15	8	4640.09
52	6	20554.03
23	20	3395.64
74	39	29953.53
893	301	413471.99
544	84	205429.11
421	45	135563.72
1333	400	533862.97
5	0	5608.94
264	97	103106.43
548	213	208532.29
282	88	166759.97
9	4	2775.25
690	347	355904.41
1125	532	343439.06
39	20	13024.53
81	68	69976.3
1	1	0
91	6	36481.89
1203	142	575849.13
348	75	148606.62
32	2	15413.36
58	7	75280.71
918	207	373365.26
438	208	305339.42
14	0	4865.45
133	1	32317.86
93	39	32554.43
343	100	248205.25
2	2	0
5	4	581475.07
1	1	5396.11
15	7	7242.81
769	338	251148.27
4	4	0
34	15	54546.08
79	33	33509.66
452	96	224656.58
32	0	15954.42
8	3	6009.32
79	3	46428.12
115	60	73533.5
29	3	11707.81
843	122	363854.76
57	35	21333.56
323	71	86293.69
220	29	152439.44
972	371	271918.95

175	56	47160.16
392	32	110167.43
555	92	282977.32
725	75	247543.61
407	7	170779.57
1	1	0
47	17	9133.52
356	104	170645.69
6	6	0
49	0	15640.46
3	3	63744.32
12	0	5822.09
355	39	224374
60	10	47117.12
2	1	633.17
259	34	132754.31
118	8	76761.87
277	98	134000.57
225	40	182518.42
51	16	18027.26
5	5	1033.02
1767	101	534293.13
264	48	108056.1
14	0	11292.24
3	0	8009.01
2	0	1963.51
202	53	68626.54
341	66	238174.88
171	99	166977.24
367	128	194313.16
11	0	25969.94
7	5	2444.79
6	6	0
2	0	385.84
449	86	250399.93
140	88	58005.28
3	3	0
740	295	433892
207	101	103477.65
76	22	17161.8
879	217	446856.43
35	1	18220.36
451	173	214403.76
2	1	23621.38
1	1	3001.28
25	4	8803.94
706	210	291022.88
370	166	160927.9
157	65	55062.96

18	4	13575.39
33	4	12380.14
736	203	327758.06
511	144	210133.22
114	35	47968.24
182	34	55890.68
36	9	10090.4
11	6	1756.22
18	0	12569.31
5	1	77496.92
2	1	6987.62
24	15	10528.23
440	307	137885.26
370	172	232595.59
3	3	0
35	6	22306.85
431	213	299969.12
489	298	230605.1