



January 13, 2014

Tom Wheeler  
Chairman  
Federal Communications Commission  
445 12th Street, SW  
Washington, DC 20554

Re: GN Docket No. 12-353, Comment Sought on the Technological Transition of the Nation's Communications Infrastructure; GN Docket No. 13-5, Technology Transitions Policy Task Force

Dear Chairman Wheeler:

Public Knowledge (PK) believes that technical trials are important to ensure that the transition of the PSTN from circuit-switched to packet-switched IP technology goes smoothly for all users. Without proper management, fundamental alterations to the fundamental architecture of our national phone system could have serious and disruptive consequences. To employ a medical analogy, the difference between upgrading a single customer to IP and converting a wire center to IP is like the difference between setting a broken arm and open-heart surgery.

Accordingly, PK has from the beginning supported well-designed trials, grounded in experience with numerous other technological transitions and based on sound engineering principles, to ensure that this transition proves no more disruptive than necessary. We have therefore been dismayed to see no one – not even AT&T, the company that proposed the trials – provide in any specific detail what specific tests would be conducted and what safeguards would protect the public during this transition.

Worse, a chorus of Silicon Valley techno-enthusiasts and consultants have continued to urge a path of recklessness, insisting that the FCC should permit an immediate conversion of the guts of our national telecommunications network with no pre-planning or precautions. One noted tech writer has gone so far as to accuse those voicing any need for caution as “using consumers as human shields” against change.<sup>1</sup> At the opposite extreme, some have objected to the very idea of transitioning from the existing copper network, let alone conducting trials to facilitate such a transition.

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<sup>1</sup> See, e.g., Larry Downes, “The End Of The Wired Network Is Coming . . . But Not Soon Enough,” *Forbes* October 30, 2013 (available at: <http://www.forbes.com/sites/larrydownes/2013/10/30/the-end-of-the-wired-telephone-network-is-coming-but-not-soon-enough/>)

### **Reviewing What Can Go Wrong.**

In light of this, it is worth pausing a moment to consider the very real concerns brought to light by the current state of deployment. It is the height of recklessness to insist that nothing can go wrong when things have *already* gone wrong. Even without alteration of the guts of the network at the wire centers, the Commission has already seen unanticipated problems emerge, such as rural call completion.

Further, as demonstrated by the recent events on Fire Island, technologies do not always scale. The Fire Island deployment of voice link disrupted credit processing and ATM withdrawals, as well as raised significant public safety concerns. There is a very real danger that a poorly constructed trial could impose unforeseen and significant costs on local businesses, as well as place the health and safety of residents at risk.

The risk is amplified because AT&T proposes to implement changes at the wire center, not merely for individual subscribers. A failure of the trial in the wire center may have wide-ranging consequences. A trial that shuts down a wire center would potentially shut down access to the PSAPs or otherwise shut down the 9-1-1 system, and may impact local cellular providers and cable operators. A malfunction in the wire center could shut down *all* communication in the region, not merely that of remaining POTs subscribers, for some unknown period of time.

In addition, the impact would radiate far beyond that particular wire center. People would not be able to call into the impacted area, and it is not foreseeable what broader impact a network failure might have on other wire centers. It is the nature of a network that it is interconnected, and an unanticipated technology failure in one wire center may have ripple effects in other wire centers.

These are not, of course, arguments against trials. To the contrary, *it is precisely to identify such potential hazards that trials are necessary*. But since such failures are possible, trials must proceed with responsible safety measures and controls. While the possibility of a wide-scale disaster may seem remote, the fact that system failures with broad geographic impact have already occurred in more limited environments (such as the AT&T U-Verse outage last year<sup>2</sup> and the failure of Voice Link on Fire Island<sup>3</sup>) means that such catastrophic scenarios must be considered as possible outcomes and planned for.

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<sup>2</sup> Doug Gross, *U-verse back up after outage hits thousands*, CNN (Jan. 24, 2013), <http://www.cnn.com/2013/01/24/tech/web/uverse-outage-att/>.

<sup>3</sup> Candice Ruud, *Verizon offers alternative to Voice Link on Fire Island*, Long Island Newsday (Sept. 10, 2013), <http://www.newsday.com/long-island/towns/verizon-offers-alternative-to-voice-link-on-fire-island-1.6046505>.

## **Striking the Right Balance Between Recklessness and Paralysis.**

The Commission has managed numerous technological upgrades of the phone system, as well as several upgrades of the CMRS system and the DTV Transition. In every transition the FCC faces enthusiasts eager to deploy new technologies and its detractors who wish to retain the existing systems that they know and understand. The Commission has the responsibility to strike the right balance between moving the technology forward while protecting vital communications infrastructure on which our lives and our economy depend.

To that end, PK is pleased to submit an analysis prepared by CTC Technology & Energy, an engineering and business consultancy firm, on PK's behalf.

CTC prepared this report for PK on a pro bono basis, and like PK, CTC does not have a financial stake in the outcome of the PSTN transition. As CTC says on its website, "We are not affiliated with equipment manufacturers, communications carriers, cable operators, or construction contractors."<sup>4</sup> Rather, CTC is interested in ensuring that the PSTN transition serves the needs of the public and the communications industry as a whole, and has applied its considerable engineering expertise toward that end in offering recommendations for the goals and methodology of PSTN technology trials. In particular, CTC has identified ten attributes that require particular testing during the trials: (1) Network capacity, (2) Call quality, (3) Device interoperability, (4) Service for the deaf and disabled, (5) System availability, (6) PSAP and 9-1-1 service, (7) Cybersecurity, (8) Call persistence, (9) Call functionality, and (10) Wireline coverage.

Furthermore, providers offering trials must not disconnect the old network or render it impossible to restore service until the final results of the trials are in and the FCC and other appropriate regulatory agencies grant permission. Problems may not appear right away, or may only occur (as they did with rural call completion) when deployment reaches a certain scale. If something goes wrong, and providers cannot restore the old service, the results could be disastrous for those stuck in a failed trial.

### **Trials in Their Proper Context**

Mr. Chairman, you wrote that the trials should be designed to "best obtain accurate and useful information about the technology transition from multiple resources."<sup>5</sup> We agree. The trials cannot and should not answer policy questions—rather, the purpose of these trials is to

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<sup>4</sup> CTC Technology & Energy, *What We Do*, <http://www.ctcnet.us/what-we-do.html>.

<sup>5</sup> Tom Wheeler, FCC Chairman, *The IP Transition: Starting Now*, FCC Blog (Nov. 19, 2013), <http://www.fcc.gov/blog/ip-transition-starting-now>.

ensure that new technologies can continue to support our values.<sup>6</sup> The trials do not determine what those values are, and the trials will not answer looming questions regarding the proper capacities or availability of the PSTN nor tell us how best to regulate carrier behavior to protect end-users.

Finally, these are trials, and should be conducted as such, and not as a *fait accompli*. Running permanent “trials” would place subscribers at risk and pre-judge the outcome of the pilot programs with regard to the adequacy of the technologies tested. They must be reversible, and it must be possible for carriers to restore service to its previous level until they have received actual authority under Section 214(a).<sup>7</sup> Specifically, this means that carriers must not remove, destroy, or disable existing equipment and infrastructure and should retain the capacity to bring it back online. Otherwise, the trials will not be real trials at all, but rather the first steps toward a technology transition whose agenda is driven by the needs of incumbent carriers and not the needs of the public and of PSTN end-users.

### **Voluntary, Not Mandatory Trials**

Public Knowledge has repeatedly urged that no one should be used as guinea pigs against their will to determine whether these new technologies will function as predicted.<sup>8</sup> This is, after all, a *trial*. If we knew what would happen, we wouldn’t need trials. We do not doubt that AT&T and other companies wish to behave responsibly, and intend to act in the best interests of their customers. But the fact remains that the self-interest of companies that will benefit from the transition may interfere with their judgment. The Commission, the public safety community, and state and local governments must provide the “adult supervision” necessary to protect the public should trials start to go wrong.

Contrary to the objections of those who view this more as a Beta Test for a ready to release product, rather than a significant effort to gather information and avoid future roll out disasters, voluntary trials would be as effective as all-in trials with regard to the broader

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<sup>6</sup> Reply Comments of Public Knowledge, *Technology Transitions Policy Task Force Public Notice Regarding Potential Trials*, GN Docket No. 13-5, at 4-5 (Aug. 7, 2013), available at <http://publicknowledge.org/pk-reply-pilot-program-public-notice>.

<sup>7</sup> Reply Comments of Public Knowledge, *Technology Transitions Policy Task Force Public Notice Regarding Potential Trials*, GN Docket No. 13-5, at 3-4 (Aug. 7, 2013), available at <http://publicknowledge.org/pk-reply-pilot-program-public-notice>; Comments of Public Knowledge, *Technology Transitions Policy Task Force Public Notice Regarding Potential Trials*, GN Docket No. 13-5, at 10, 14-15 (July 8, 2013), available at <http://publicknowledge.org/pk-comments-pilot-programs-phone-network-transitio>. See also 47 U.S.C. § 214(a).

<sup>8</sup> Reply Comments of Public Knowledge, *Technology Transitions Policy Task Force Public Notice Regarding Potential Trials*, GN Docket No. 13-5, at 8-11 (Aug. 7, 2013), available at <http://publicknowledge.org/pk-reply-pilot-program-public-notice>; Comments of Public Knowledge, *Technology Transitions Policy Task Force Public Notice Regarding Potential Trials*, GN Docket No. 13-5, at 6-7 (July 8, 2013), available at <http://publicknowledge.org/pk-comments-pilot-programs-phone-network-transitio>.

technological questions. AT&T or other providers can induce participation the same way drug and medical device manufacturers do, by offering free or discounted service for the pendency of the trial.

Voluntary trials would have the added benefit that businesses, residential users, and government agencies that rely on the PSTN for their day-to-day functioning would not be adversely affected. As was demonstrated in Fire Island, when put in real-world contexts next-generation technologies may fail to support or be insufficiently reliable for features for routine business needs like credit card processing or ATM transactions. In addition, many small and midsize businesses (such as pharmacies, real estate agents, and banks) as well as government agencies rely on fax machines and other legacy technologies that do not work with IP-based or wireless equipment.

Also, individual users may have particular needs that rely more heavily on certain aspects of the traditional network than the general population. A customer that uses the copper network for heart monitoring, for example, could justifiably refuse to switch over to a network that does not support her medical equipment or does not have the same reliability as the existing network. Once we have found solutions to those legitimate concerns, then carriers can begin the process of switching those customers over to new networks. The purpose of the trial is not to see whether users can adapt to a new network technology with diminished capability; rather, it is to ensure that new technologies continue to provide the capabilities that users need.

Eventually, of course, these issues must be addressed and resolved. Ultimately the conversion will be mandatory for many who continue to find existing services adequate. But certainly at this initial stage, when a poorly conducted trial could create significant public backlash for the IP Transition as a whole, the Commission should use voluntary rather than mandatory trials.

## Conclusion

Especially at this early stage, it is critical that the trials be conducted responsibly. If trial procedures are insensitive to the real and legitimate needs of consumers and other end-users, they could undermine public confidence in the transition as a whole. By contrast, well conducted trials will both inform policy and promote . PK and CTC hope that the attached report will be a valuable contribution to this endeavor.

Respectfully submitted,

/s/ Harold Feld

/s/ Jodie Griffin

/s/ John Bergmayer

PUBLIC KNOWLEDGE