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Ms. Charlotte Savercool
Legislative Clerk
Committee on Energy and Commerce
2125 Rayburn House Office Building
Washington, DC 20515

**Re: Questions for the Record – “The Evolution of Wired
Communications Networks” – October 23, 2013**

Dear Ms. Savercool:

Pursuant to the December 20, 2013 letter from Chairman Walden, enclosed please find the responses of James Cicconi to the Questions for the Record.

Thank you in advance for your attention to this matter. Please do not hesitate to contact me with any questions or concerns.

Sincerely,

Attachment

EAST #1097650

RESPONSES TO QUESTIONS FROM THE HONORABLE BILLY LONG

Q. Can you elaborate on the types of telemedicine and mobile health applications that would be available to my constituents in the best congressional district in the United States if they did have the IP services?

A. As you noted during the hearing, residents in rural areas may have limited access to the latest medical technologies and limited numbers of available health-care providers. In several different respects, mobile-health and telehealth technologies hold great promise for extending quality, affordable healthcare into remote and previously underserved areas. The healthcare opportunities presented by the IP transition fall into several different categories.

The first enables a patient to consult, in real time and over a secure video link, with doctors in a major medical center in Missouri or even across the country. AT&T's telehealth solution, known as AT&T Virtual Care, combines our most sophisticated, high-resolution, IP-based video-conferencing service with numerous medical peripherals to enable face-to-face medical consultations over AT&T's highly secure network. AT&T Virtual Care also provides two-way connectivity for doctor-patient consultations that is cost-effective and easily portable. In addition to the real-time, secure video link, these solutions allow the measurement, transmission and display of various vital signs and biometric information; they also include a separate, hand-held, high-resolution camera, permitting close-up examination of skin conditions and the like. These solutions offer individuals in remote regions access to the nation's best medical specialists, over an IP network, without leaving their home-town clinic or community health center.

Mobile health solutions also hold great promise for rural and underserved populations. An almost endless variety of mobile health applications is now available for smart and data-enabled phones, allowing people to track numerous indicators, from daily exercise and calorie intake to blood glucose levels for diabetics. These applications run on today's ubiquitous mobile, hand-held devices and give users the ability to conveniently and regularly track the health information that matters most to them, and to receive coaching and support along the way. In addition to the coaching and support available through these applications, the IP network allows these technologies to feed a regular stream of health-status information into a patient's electronic medical record. This enables doctors to regularly monitor their chronic disease patients and prioritize additional outreach to those experiencing the most difficulty in managing their conditions.

Remote patient monitoring technologies, which will increasingly depend on a ubiquitous, all-IP network, facilitate monitoring of all patients, urban and rural alike, for serious medical conditions in the comfort of their own home, instead of requiring a costly and inconvenient, extended hospital stay. Small, body-worn wireless sensors and other wireless-enabled, in-home devices monitor indicators associated with a wide range of medical conditions, including chronic heart failure and chronic obstructive pulmonary disorder. These monitors transmit information to a hub device in the patient's home,

from where it travels securely over the IP network to a healthcare provider for analysis. AT&T's remote patient monitoring solution includes a locked-down tablet, with embedded secure video-on-demand, pre-paired with medical peripherals that allow clinicians to continuously track their patients' health status after discharge from the hospital. These technologies allow patients to receive at home the monitoring and follow-up care that would previously have required a longer hospital stay and cumbersome, wired sensors and avoiding the high cost of additional hospital time and the inconvenience and isolation of extended separation from family.

Finally, electronic medical records (EMRs) and health information exchanges also rely on IP technology and hold the potential for better, more cost-effective medical care for all citizens, regardless of where they live. EMRs, already adopted by many physicians, are replacing paper files with digital health-care records, much as numerous other segments of our economy long ago moved to digital records. As noted above, EMRs can receive health and biometric data from mobile-health applications and remote patient monitoring devices and display it in an accessible, user-friendly manner for a patient's health-care practitioner. The greater promise of these digital records, however, comes when they are woven together through a health information exchange, so any doctor treating a patient has convenient, immediate and secure access to the records, observations and recommended treatments from all of the other practitioners who have seen that patient, as well as prescription records and radiological images. As with the other exciting capabilities discussed above, this too can only be effectively accomplished over an all-IP network.

RESPONSES TO QUESTIONS FROM THE HONORABLE ANNA ESHOO

- Q. I understand that AT&T ultimately proposes moving some of its customers away from both wired voice and broadband service. My concern is that consumers could incur steep charges for applications like streaming video and music if your substitute wireless service is subject to similar usage-based pricing to what we see today with 4G LTE. How do you respond to this concern?**
- A. At this point, the precise details of the services to which TDM customers would likely be migrated and the projected cost for those services have not yet been established. AT&T has sought FCC approval for narrowly limited, geographic trials for a transition away from the legacy, TDM network. We are optimistic that, in the relatively near future, the FCC will take the first step toward such approval, accepting providers' IP-transition plans for filing. When AT&T files its plan with the agency, it will contain more detail about replacement products that will be available to customers. Currently, all I can say is that pricing is continually under review, with the intent to satisfy customers' needs in a competitive environment.

Q. AT&T has frequently cited the findings of a CDC survey showing that the number of customers who have cut the cord is large and increasing. But that survey asks only about voice service. Do you have evidence to suggest that those cutting the cord for voice service are also moving away from a wired broadband connection?

A. Several Commentators and analysts have noted the growing trend of wireless broadband substitution (in place of fixed broadband services). For example, the 2013 Pew Institute Smartphone Usage and Adoption Study found that 8% of Americans access broadband via a Smartphone and have no home broadband connection whatsoever. Other commentators and analysts have noted this same trend and concluded that the growth of 4G LTE technologies will spur those numbers even higher. See, *Growth In Wireless-Only Subscribers Heralds Changes for Internet Access* By Mari Sibley, SmartPlanet, March 13, 2013 (<http://www.smartplanet.com/blog/the-report/growth-in-wireless-only-subscribers-heralds-changes-for-internet-access>); LTE Is Going To Accelerate Fixed to Mobile Broadband Substitution, Gary Kim, Mobility Techzone (November 26, 2012) (<http://www.mobilitytechzone.com/topics/4g-wirelessevolution/articles/2012/11/26/317066-lte-going-accelerate-fixed-mobile-broadband-substitution>).

AT&T, however, references the CDC survey to demonstrate a trend that highlights the fact that more and more customers are moving away from *time-division multiplex (TDM) service* – the old style of switched telephone service that relies on a continuous circuit between the two end-points of a call. This is the 20th-century technology that the market is increasingly rejecting in favor of other, more efficient network technologies. (And it is the old technology that it is becoming increasingly difficult and expensive for companies like AT&T to maintain because the parts and qualified personnel simply are not available. To paraphrase one of our senior executives, no one graduates from Stanford or MIT planning to become a TDM engineer these days.) In some cases, the new technology will be the wireless phone that seems to have become the sole communication device for everyone under 30. In some cases, the replacement service will be an over-the-top internet service like Skype. In other cases, it will be a voice-over-internet-protocol (VOIP) service that runs over the same wires (whether telephone or cable) that have served homes in the past. This is the voice service that typically serves AT&T's U-Verse customers and Verizon's FIOS customers. It is also typically the service that serves cable customers who have opted for their provider's triple play (voice, data and video) package. Our market research has shown that, in many cases, customers may not even realize that they no longer have the plain old telephone service (POTS) that was so common during the last century. In the IP transition we do not necessarily aim to take customers off of our wired broadband network. Quite the contrary. We just want to move them off of last century's technology and onto the IP-enabled voice service of the 21st century.

RESPONSES TO QUESTIONS FROM THE HONORABLE HENRY WAXMAN

Q. At the hearing you stated that the rules of the Telecom Act are not technology neutral, and cited the different titles of the Act that apply to wireline, wireless and cable service. Do you believe that within Title II of the Act, there is a distinction between TDM voice services or IP delivered voice or are the rules for voice service technology neutral?

A. Title II of the Act does not distinguish between wireline telecommunications services (such as traditional, circuit switched voice services) based on a technology. But, whether and how a service (including a voice service) is regulated under Title II depends on how that service is classified. The Act distinguishes between telecommunications services and information services (which are mutually exclusive categories in that a service is one or the other, but not both), and, for the most part, limits regulation under Title II to telecommunications services. Under the Act, telecommunications services are defined as the offering of “telecommunications” for a fee directly to the public. 47 U.S.C. § 153(46). In turn, telecommunications is defined as “the transmission, between or among points specified by the user, of information of the user’s choosing, without change in the form or content of the information as sent and received.” *Id.* at § 153(43). Traditional, circuit-switched voice services are classified as “telecommunications services” because they are limited to transmitting information (*i.e.*, voice traffic) with no net change in the form or content of that information as sent and received. In contrast, most, if not all, VoIP services are properly classified as information services because the voice component of those services is tightly integrated with other functionalities that allow end users to “generat[e], acquir[e], stor[e], transform[], process[], receiv[e], utiliz[e], or mak[e] available information via telecommunications,” 47 U.S.C. § 153(24), and also because they involve a net protocol conversion.

Q. During the hearing, you referenced a chart showing a decline in ILEC Switched Landline service as a share of U.S. household primary line service. Mr. Iannuzzi pointed to slower adoption of wireless and IP voice alternatives by business. How would you characterize the differences between residential and business customer’s reliance on TDM voice services? How should policy makers consider these differences in the context of the IP transition?

A. Although many business customers already have made the transition to IP-based services, their adoption of such services has been somewhat slower than residential customers. It appears that is so for several reasons. First, the largest facilities-based providers of VoIP

services are cable operators, which originally focused on marketing to residential customers, and did not focus on business customers and services until several years later. Now that cable operators have begun to focus on business customers and expanded their business service offerings, it seems likely that the number of business customers switching to IP-based services offered by cable will rapidly increase, replicating cable's experience in the residential market. Likewise, telephone companies initially focused their VoIP marketing and service offerings on residential customers, and only recently have begun to focus on business customers and services. Thus, any differences between residential and business customers' adoption of IP voice alternatives to TDM voice services is likely to diminish rapidly in the near future. Second, business customers are more likely than residential customers to sign up for long term service contracts, and to utilize more expensive customer premises equipment (CPE). As a consequence, business customers may delay adoption of IP voice alternatives until their existing TDM service contracts expire, or their CPE becomes obsolete or fully-depreciated. Third, many residential customers have switched to over-the-top VoIP services, which may not provide the same quality of service and service guarantees as those provided by facilities-based VoIP service providers. Thus, it should come as no surprise that business customers (which generally have greater demand for reliable, high quality services than residential customers) have adopted VoIP alternatives at a slower rate than residential customers.

These differences between residential and business customers should not alter policy makers' analysis in the context of the IP transition. In both cases, policy makers should consider whether wireless and IP-based voice services are a reasonable alternative to traditional, circuit-switched voice services. Specifically, they should determine, *inter alia*, whether such alternatives support essential features and functions, and offer adequate service quality and reliability. That does not mean that IP-based alternatives will necessarily replicate every feature and function offered by existing TDM voice services, nor should it. But, as the IP transition progresses, all affected parties (consumers, industry and policy makers) will have the opportunity to engage in an open, frank, and informed dialogue concerning any potential gap in technology, services and policy, and whether, how, and by whom such gap should be filled. In some cases, providers may need to modify or upgrade their IP-based services to provide essential features and functions. In others, policymakers and other stakeholders may conclude that particular features and functions no longer are necessary or make sense in an all-IP world. Or they may find that entities that historically relied on TDM technology and services will have to adapt their own products and services to be compatible with next generation wireless and IP-based services. But, regardless of which solution is adopted, policymakers should ensure that all parties affected by the transition receive adequate notice of the need to adapt, and have the time and opportunity to do so.