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

In the Matter of)
) GN Docket No. 13-5
Technology Transition Policy)
Task Force)

COMPTEL respectfully submits these comments, pursuant to the Federal Communications Commission’s (“Commission”) Public Notice (DA 13-1016)(“Notice”), seeking comments on potential trials “related to the ongoing transitions from copper to fiber, from wireline to wireless, and from time-division multiplexing (TDM) to IP.”¹

Introduction and Summary

As stated in the *Notice*, the Commission’s goal is to “promote investment and innovation, while protecting consumers, promoting competition, and ensuring that emerging all-Internet Protocol (IP) networks remain resilient.”² Competition is one of the most effective ways to achieve consumer protections. Consumers with choices have the ability to choose the services that best meet their needs based on price and quality. Competition also incentivizes *all* competitors to innovate and offer lower prices to consumers. COMPTEL has repeatedly explained that two key factors to achieving competition, and therefore consumer protection and consumer choice, during the IP transition are (1) ensuring the competitors’ ability to obtain direct IP Interconnection with the incumbent local exchange carrier (“ILEC”) for all voice traffic over

¹ *Technology Transitions Policy Task Force Seeks Comment on Potential Trials*, GN Docket No. 13-5, Public Notice, DA 13-1016 (Technology Transitions Policy Task Force, May 10, 2013) (*Notice*).

² *Notice* at 1.

the PSTN (“VoIP Interconnection”)³ pursuant to the Sections 251 and 252 of the Telecommunications Act of 1996 (“the Act”); and (2) ensuring competitors have access to last mile facilities necessary to reach end-users regardless of the transmission facility (*e.g.*, copper or fiber), or the electronics attached (*e.g.*, packetized or TDM). Both of these factors will also drive innovation and investment in the networks. Although both factors are critically important, given the focus of the Commission’s *Notice*, these comments will respond to the Commission’s request for comment on an IP interconnection trial and address the actions the Commission should take to require VoIP Interconnection immediately rather than conduct a regulatory or technical trial.

The Commission seeks proposals for technical trials on VoIP Interconnection. But, as recognized in the *Notice*, VoIP interconnection is happening all over the world.⁴ The delay in the U.S. is not a result of technical issues. Rather, it is the unwillingness of the largest incumbents, the RBOCs, to enter into agreements for VoIP interconnection in accordance with the mandates of the Act, despite the Commission’s stated expectation in 2011 that carriers would negotiate in good faith for IP interconnection of voice traffic.⁵

Competitors have been at the forefront of the IP transition for over a decade. Some of our members have been *all-IP* since 1999. For at least 4 years competitors have been asking the Commission to take action to ensure the ILECs (AT&T and Verizon in particular) comply with their obligations under Sections 251 and 252 of the Act and allow competitors to exchange

³ We are referring here to the exchange of all voice traffic between managed network arrangements intended to preserve voice quality comparable to the existing PSTN, and differentiate such interconnection from the “best efforts” arrangements that characterize the Internet. Examples of managed architectures include AT&T’s UVerse, Verizon’s FiOS, the networks of cable providers, and many of COMPTEL member companies.

⁴ *Notice at 4.*

⁵ Report and Order and Further Notice of Proposed Rulemaking, *Connect America Fund et al.*, FCC 11-161, ¶¶ 1010-11 (2011)(“USF/ICC Transformation Order and FNPRM”).

traffic with them at points on their network where they have IP facilities (*i.e.*, network border elements such as session border controller or the network itself to the extent it maintains a point of presence within a carrier hotel), so that these competitors do not have to downgrade to TDM in order to exchange traffic with these ILECs.⁶ Moreover, the Commission has seldom witnessed such broad support for action. Nearly *every* segment of industry (but the RBOCs) recognizes the need for, and support, the application of Sections 251 and 252 safeguards to VoIP interconnection negotiations.⁷

The RBOCs, such as AT&T and Verizon, nevertheless, continue to refuse to enter into VoIP interconnection agreements that would comply with the simple competitive protections of those statutory provisions, such as public disclosure, opt-in rights and arbitration (should negotiations fail). Given that these carriers have far more voice subscribers than any other provider,⁸ the foundation of competition – interconnected networks that allow people to call each other regardless of each person’s provider – is jeopardized without nondiscriminatory interconnection with these carriers.

Indeed, in their advocacy, AT&T and Verizon are unabashedly committed to sacrificing the industry’s transition to IP technology in favor of advancing their deregulatory agenda. They repeatedly confuse the IP Interconnection at issue here with Internet peering and transit arrangements that are irrelevant in the managed VoIP environment that exists today. *Perhaps*

⁶ See *e.g.*, *infra* p. 12, n. 34.

⁷ See *infra* ftns. 37-42. See also, Letter of American Cable Association, Competitive Carrier Association, COMPTTEL, and Computer & Communications Industry Association, GN Docket No. 12-353, filed Mar. 21, 2013 [These parties submit “that maintaining the Act’s interconnection and arbitration obligations for ILECs with IP-based networks represent both the right policy choice and the correct legal outcome.”].

⁸ See *infra*, n. 49.

one day AT&T and Verizon will forgo its managed voice services (including its existing VoIP products such as UVerse and FiOS which they clearly market to consumers as *not* being provided over the Internet) and offer only OTT voice products to which all its customers - even enterprise customers - will subscribe and for which the Internet peering and transport arrangements might suffice. But that day is not today and not likely anytime in the near future due to the security and quality of service expected by most consumers for voice.⁹ So these discussions of Internet peering and transit arrangements are a red herring. Competitors need interconnection to these ILEC managed IP networks, via interconnection agreements, to reach these ILECs' customers via IP today.

Given that the U.S. lags behind the rest of the world when it comes to the IP transition and that the RBOCs continue to hold up IP transition progress by refusing to negotiate pursuant to their statutory obligations, the Commission should not foster further delays through trials, but rather should confirm carrier interconnection rights and obligations under the Act *now*. The Commission's delay confirming the policy framework for IP-to-IP interconnection of voice traffic will only serve to further postpone the RBOCs from negotiating amendments to their existing interconnection agreements with other carriers.¹⁰ AT&T and Verizon are perfectly

⁹ AT&T and Verizon's own product and marketing, as well as subscribership data, confirms that the majority of customers, both residential and business, desire the continuation of PSTN quality and security, even if OTT offering also exist. Both carriers assure their customers that their VoIP services are not Internet services. See, <http://newscenter.verizon.com/press-releases/verizon/2010/fios-digital-voice-heres.html> ["To understand the features and quality of FiOS Digital Voice, you first need to know that the service is not the same as the services you get with a little Internet adapter for your modem and phone, and it does not ever touch the public Internet."]; See also, www.att.com/esupport/article.jsp?sid=KB401031#fbid=L8RYx19uzva ["AT&T U-verse Voice service is provided over AT&T's world-class managed network and not the public Internet."]

¹⁰ In order to address the basic parameters of VoIP interconnection that are required for amendments to interconnection agreements that will promote an all IP transition of the networks,

capable of VoIP interconnection now as a technical matter. No technical trial is required. Indeed, the law already addresses the framework for interconnection, so a regulatory trial is also not needed. The Commission already has the real-world evidence of the RBOCs failure to enter into interconnection agreements even when the Commission has said it “expects” them to. It is time for the Commission to ensure immediate compliance and put an end to the incessant delay.¹¹ If the Commission had addressed the competitors’ concerns in 2009,¹² the industry would not still be *discussing* VoIP interconnection, consumers would be *benefiting* from its reality.¹³ So the real question before the Commission is whether it is going to continue to allow the RBOCs to sidestep their obligations, in the RBOCs’ drive toward complete deregulation of VoIP interconnection, or is the Commission going to move the transition forward by ensuring compliance with the interconnection provisions of the Act.¹⁴ Now is the time for the

COMPTTEL submits an analysis of those provisions needed in *Necessary Technical and Operational Elements of a VoIP Interconnection Agreement*, Attachment A (“Attachment A”). Moreover, as discussed more fully in *Implementing VoIP Interconnection: Maximizing Economic and Operational Efficiency*, Attachment B (“Attachment B”), existing signaling and numbering databases are sufficient to support the conversion of existing PSTN voice traffic to IP. VoIP interconnection for existing PSTN voice traffic needs to be accomplished before considering how to restructure databases to accommodate advanced services. As also explained in Attachment B, the technical feasibility of VoIP interconnection is already established and, therefore, would not benefit from a trial.

¹¹ The Commission has already experimented with a “talk softly and suggest you have a stick” approach with the Commission’s encouragement of “good faith negotiations” in the *USF/ICC Transformation Order*. *Supra*, n. 5. The principal consequence of that approach has been legal pleadings by the RBOCs that claimed no such obligation exists, *see e.g., infra* ftns. 46-47, reaffirmed by inaction developing template agreements to guide negotiations.

¹² *See infra* n. 34.

¹³ *See* Attachment B for a discussion of the benefits that can be realized by replacing TDM interconnection arrangements for interconnection arrangements between IP transport networks.

¹⁴ It has been five years since NARUC recognized the importance of a carrier’s ability to interconnect in a technology neutral manner and resolved to take action to protect the State

Commission to confirm what the law already provides for – VoIP interconnection pursuant to Sections 251 and 252 – so that the industry can move forward in transitioning to all-IP technology.

I. The Commission Should Not Put the Interconnection Provisions of the Statute on Trial

In the *Notice*, the Commission is considering allowing participants to a trial to negotiate “without a backstop of regulations or specific parameters and provide updates, reports, and data to the Commission regarding any technical issues as well as any other issues of dispute.”¹⁵ As an initial matter, whether a statute applies cannot be determined by whether select parties ‘have a good experience’ in a test environment. A statute applies (or does not) because of its terms and the intent of Congress. Moreover, a trial of negotiations *supervised* by the Commission by its

commissions’ authority and carrier interconnection rights, under Sections 251 and 252, in a technology neutral manner. NARUC Resolution Regarding the Interconnection of New Voice Telecommunications Services Networks, adopted July 23, 2008. It has been four years since a group of competitors asked for the Commission’s help in getting the largest ILECs to comply with their interconnection obligations as they pertain to VoIP interconnection. *See infra* n. 34. It has been three years since the Commission linked the clarification of interconnection rights and obligations to the promotion of IP-to-IP interconnection. National Broadband Plan, at 49 (2010) [Recommendation 4.10: The FCC should clarify interconnection rights and obligations and encourage the shift to IP-to-IP interconnection where efficient]. It has been two years since tw telecom filed a petition seeking a declaratory ruling on its right to VoIP Interconnection with the ILEC pursuant to Section 251. Petition for Declaratory Ruling of tw telecom inc., WC Docket No. 11-119, filed July 14, 2011. It has been 18 months since the Commission issued an order stating that it “expect[s] all carriers to negotiate in good faith in response to requests for IP-to-IP interconnection for the exchange of voice traffic...[and] expect[s] such negotiations to result in interconnection arrangements between IP networks for the purpose of exchanging voice traffic.” *USF/ICC Transformation Order and FNPRM* at ¶ 1011. Finally, in response to that proceeding, nearly every segment of the industry (but the RBOCs) filed comments supporting Commission action in finding the statutory interconnection obligations applied to VoIP interconnection. *See infra* ftns. 37-42. Yet, the Commission has still not taken such action and there is still no evidence of AT&T entering into any VoIP interconnection agreement and, while Verizon *claimed* it had a single agreement in early 2012, but even that “agreement” is now in question. *See infra* n. 17.

¹⁵ *Notice* at 5.

nature provides no evidence as to behavior *without* regulation. Finally, a trial of “negotiations with no regulatory backstop” has already been conducted. This is the environment the Commission created when it encouraged good faith negotiations in the *USF/ICC Transformation Order and FNPRM*, but without stating the remedy if it failed.¹⁶ The real-world evidence the Commission seeks already is apparent. Indeed, if asked to provide the proof that regulatory intervention is not required, Verizon and AT&T have little to point to as the number of interconnection agreements they have entered into for VoIP interconnection consists of only one *alleged* agreement of Verizon.¹⁷

¹⁶ The Commission should have stated that, pursuant to the Act, carriers can file with the state for arbitration. 47 U.S.C. §252.

¹⁷ See Comments of Verizon, *In the Matter of Connect America Fund et al*, WC Docket No. 10-90 *et al*, at 14 (filed Feb. 24, 2012)[“ Verizon currently has one agreement in place covering its FiOS Digital Voice VoIP traffic, and we are negotiating others.”]; *Compare to* Reply Comments of Verizon and Verizon Wireless, *In the Matter of AT&T Petition To Launch a Proceeding Concerning the TDM-to-IP Transition*, GN Docket No. 12-353, at 8 (filed Feb. 25, 2013) [“Verizon currently has one agreement in place covering its FiOS Digital Voice VoIP traffic...”]. In response to Verizon’s claims, a group of competitors filed a petition with the Massachusetts Department of Telecommunications and Cable, requesting that the Department issue an advisory ruling stating that “any IP-interconnection agreement between Verizon and any other party concerning FiOS Digital Voice Service must be filed with the Department for review and approval under 47 U.S.C. § 252(a)(1) and 252(e)(1)” and to take all necessary and appropriate action to enforce its advisory ruling. Petition of CTC Communications Corp. d/b/a EarthLink Business; Lightship Telecom LLC d/b/a EarthLink Business; Choice One Communications of Massachusetts, Inc. d/b/a EarthLink Business; Conversent Communications of Massachusetts, Inc. d/b/a EarthLink Business; EarthLink Business, LLC (formerly New Edge Network, Inc. d/b/a EarthLink Business); Cbeyond Communications, LLC; and tw data services llc (collectively, “Competitive Carriers”), Docket No. D.T.C. 13-2, (filed Jan. 31, 2013). This would enable carriers to opt-in to the agreement. It now appears as if Verizon may not even have this one agreement. See, Verizon Motion for Abeyance, *Investigation by the Department on its Own Motion to Determine whether and Agreement entered into by Verizon New England Inc., d/b/a Verizon Massachusetts is an Interconnection Agreement to be filed with the Department for Approval in Accordance with 47 U.S.C. § 252*, Commonwealth of Massachusetts Department of Telecommunications and Cable, D.T.C. 13-6, p. 1, filed June 25, 2013 [Verizon claims that “the parties must still memorialize in writing the terms and conditions governing their exchange of voice traffic in IP format” and that the Department should hold the proceeding in abeyance until the parties have completed that task.] Now, after all these years, and only after the filing of this

Congress has already established the framework for negotiating interconnection agreements. As Commissioner Rosenworcel testified: “Congress, in laying out the definitions at the front of the Communications Act, speaks to telecommunication services *regardless of the technology used.*”¹⁸ As such, the ILECs cannot use a change in technology to escape their interconnection obligations. Moreover, nothing in the record justifies a grant of forbearance from these critical provisions of the Act. Indeed, carrier experiences with the incumbent, since the Commission issued its expectation for agreements reached through good faith negotiations, supports the need for Commission enforcement of the Act. As discussed in the next section (and in the attachments) it is already known that VoIP interconnection with the ILECs is possible now. What is needed is Commission confirmation that VoIP interconnection agreements are governed by Sections 251 and 252 of the Act. As Chairwoman Clyburn stated, “providing certainty [regarding voice interconnection] for *all* providers in the marketplace should be a priority for us. Addressing the interconnection framework will potentially speed the transition

complaint in Massachusetts by this group of competitors, Verizon sent the complainants offers of possible “commercial agreements” for VoIP interconnection. *This demonstrates that it is only the threat of regulatory action that spurs a response from Verizon* (and it is not clear even this would cause any change in the behavior of other RBOCs). Moreover, this offer would not afford the protections of Sections 251/252 as Congress intended. Indeed, Congress required interconnection in the 1996 Act because it understood the history of the industry and that competition itself does not ensure interconnection between providers, especially where some are much larger than others, and possess market power. Sections 251/252 provide for interconnection at any technically feasible point, at just and reasonable rates, and the opportunity for arbitration where the parties’ negotiations fail. These protections continue to be necessary even as the PSTN transitions to IP transmission technology.

¹⁸ Transcript, July 10, 2012 House Committee on Energy and Commerce, Subcommittee on Communications and Technology, Hearing on FCC Oversight.

to IP. I am happy that our new Task Force will be taking up this issue, and I believe it should be the initial recommendation it makes to the Commission.”¹⁹ We could not agree more.

Rather than put the statute on trial, the Task Force should be considering the real-world evidence already gathered, complete its review of the IP interconnection framework pending in the *USF/ICC Transformation Order and FNPRM*, and recommend to the Commission presently that it find that Sections 251/252 are controlling. This is consistent with the statute itself, as well as the Commission’s earlier finding that a change in the transmission technology used in the network does not change the fundamental principles for interconnection under the Act.²⁰

a) *Congress established the framework for interconnection negotiations and agreements, including VoIP Interconnection.*

Congress already established the framework for the negotiation, minimum requirements, and the process for the arbitration/approval of interconnection agreements, and the record is complete in demonstrating that VoIP interconnection falls within that framework. As COMPTTEL and others have explained, managed VoIP services are telecommunication services,²¹ VoIP interconnection is technically feasible,²² VoIP interconnection will be used for

¹⁹ Prepared Remarks of FCC Commissioner Mignon Clyburn, 30th Annual Institute on Telecommunications Policy & Regulation, Practising Law Institute, December 13, 2012, available at: <http://www.fcc.gov/document/clyburn-remarks-30th-annual-institute-practising-law-institute>.

²⁰ *USF/ICC Transformation Order and FNPRM* at ¶ 1011.

²¹ COMPTTEL at 17-24; *See also, e.g., Cbeyond et al* at 20-234. Some provider even argue “... that section 251(c)(2) requires ILECs to provide IP-to-IP interconnection – and that there is no need to classify VoIP as a telecommunications service in order to provide the requested clarification.” Letter of Howard J. Symons, Mintz Levin, to Marlene Dortch, WC Docket No. 10-90 *et al*, p. 1 (filed Oct. 12, 2011).

²² *See* Attachment A.

the provision of exchange access and telephone exchange service,²³ and the section 251(c) obligations continue to apply in a VoIP world,²⁴ even as with regard to ILEC affiliates.²⁵

Apparently, because they couldn't provide valid arguments as to why VoIP interconnection falls outside of the mandates of the Act, AT&T and Verizon instead devoted significant portions of their comments in the *USF/ICC Transformation Order and FNPRM* to discussing the transit and peering arrangements for exchanging Internet traffic, even though their flagship VoIP services (specifically, U-verse and FiOS) are *not* a part of the open Internet, and the subscribers to these services are not reachable through Internet peering and transit arrangements. As discussed in the next section (and more fully in Attachment B), the Internet is not a viable platform for PSTN traffic. It may be that some day (in the distant future) AT&T and Verizon may develop an OTT product that would meet the quality of service standards that consumers expect from their phone service and, therefore, all its customers - even its business customers - would buy, but that is not the case now. The rest of the industry should not have to wait for the ILECs to serve all its customers via an OTT VoIP service in order to exchange voice traffic on an IP basis with them when they are perfectly capable of exchanging managed VoIP traffic now.

b) *The only mechanism to avoid the mandates of the Act is forbearance for which there is no justification.*

In the case of VoIP Interconnection, there is no basis for forbearance of the interconnection provision in Sections 251 and 252 of the Act. The Commission "has set an

²³ COMPTTEL at 24-26; *See also, e.g., Cbeyond et al* at 20-23.

²⁴ COMPTTEL at 28; *See also, e.g., Cbeyond et al* at 20-23.

²⁵ COMPTTEL at 26-28; *See also, e.g., TelePacific* at 14-15.

express goal of facilitating industry progression to all-IP networks, and ensuring the transition to IP-to-IP interconnection is an important part of achieving that goal.”²⁶ In fact, the Commission has already found IP interconnection between providers to be *critical* in the *USF/ICC Transformation Order and FNPRM*.²⁷ That same year the Commission observed that “the 1996 Act recognized, without the ability to exchange traffic with the local incumbent carrier, no competitive provider would be able to compete effectively.”²⁸ It further found that ILECs continue to have the incentive to refuse reasonable interconnection to other network operators²⁹ and that “when incumbent carriers resist interconnection with competitive telecommunications carriers, it impedes the development of facilities-based voice services.”³⁰ Moreover, the Commission stated that “[c]ompetition in local telecommunications markets can deliver significant benefits to consumers...”³¹ Accordingly, it is inconceivable that the Commission could find that it is in the public interest for the Commission to *forbear* from its (and the state commissions) duty to ensure nondiscriminatory, just and reasonable terms for interconnection.

²⁶ *ICC Transformation Order and FNPRM* at ¶ 1335.

²⁷ *Id.* at ¶ 1010 (emphasis added).

²⁸ Declaratory Ruling, *Petition of CRC Communications of Maine, Inc. and Time Warner Cable Inc. for Preemption Pursuant to Section 253 of the Communications Act, as Amended, et al*, WC Docket No. 10-143, GN Docket No. 09-51, CC Docket No. 01-92, FCC 11-83, ¶ 12 (rel. May 26, 2011)(“Interconnection Clarification Order”).

²⁹ *Id.* at ¶ 1337, explaining “the Commission previously has found that incumbent LECs have no economic incentive . . . to provide potential competitors with opportunities to interconnect with and make use of the incumbent LEC’s network and services. Consequently...[n]egotiations between incumbent LECs and new entrants are not analogous to traditional commercial negotiations in which each party owns or controls something the other party desires.” (footnotes omitted).

³⁰ *Interconnection Clarification Order* at ¶12.

³¹ *Id.*

Furthermore, negotiations conducted under some vaguely-defined oversight by the Commission could not credibly provide evidence that forbearance is in the public interest. The notion that negotiations conducted as part of a trial overseen by the Commission, where reports on disputes and issues will be provided to the Commission, would provide “real-world” experiences is ludicrous. The *Notice* effectively concedes the fact that, if an agreement reached during the trial were to be available as the basis for future negotiation, it may impact the negotiations during the trial.³² In other words, the negotiation during a trial would not reflect “real world” negotiations and, therefore, it cannot provide support for deregulation.³³

c) *Real-world experience supports the need for regulation.*

In a 2009 *ex parte* letter, a group of competitors asked the Commission to “make clear that the interconnection and traffic exchange obligations of the Telecommunications Act continue to apply even as networks transition from circuit-switched to packet-based technology.”³⁴ In doing so, the competitors pointed out “the Commission will prevent possible gamesmanship and remove a potential barrier to the full utilization – and, therefore, further deployment – of advanced telecommunications networks.”³⁵ As the competitors explained, instead of agreeing to interconnect and exchange traffic on an IP-basis, the major ILECs require competing carriers to convert traffic to legacy TDM-format prior to delivering it to the ILEC,

³² *Notice* at 6.

³³ As discussed further below, we do believe, however, that the Commission could speed the negotiation and IP transition process by (1) confirming the protections of Sections 251 and 252 for IP interconnection agreements and (2) overseeing an RBOC(s)-CLEC(s)’ IP interconnection negotiation, resulting in an agreement that could be used as model for other carriers.

³⁴ Letter of William H. Weber, Cbeyond, *et al*, to Marlene Dortch, GN Docket No. 09-51, p. 1, filed Sept. 22, 2009.

³⁵ *Id.*

even where the ILEC itself had deployed facilities that could transport the traffic in packet form on its own network. The result of this forced conversion is increased cost for unnecessary media gateways, and reduced voice quality for consumers because of the unnecessary protocol conversions.

The comments in response to the Commission's Further Notice in *USF/ICC Transformation Order and Further NPRM* demonstrate that there is wide-spread recognition of the inability to obtain interconnection agreements with the largest ILECs and the need for the Commission to take action.³⁶ Representatives from nearly every segment of the industry -- cable providers,³⁷ rural carrier associations,³⁸ CLECs,³⁹ wireless providers,⁴⁰ end-users,⁴¹ and edge

³⁶ In the Further Notice of the *USF/ICC Transformation Order and FNPRM*, the Commission sought "comment on the implementation of good faith negotiation requirement, and ...any additional actions the Commission should take to encourage transitions to IP-to-IP interconnection where that is the most efficient approach." *ICC Transformation Order* at ¶ 1135. Unless otherwise noted, the comments in footnotes 37 - 42 were filed in WC Docket No. 10-90 *et al*, on February 24, 2012.

³⁷ National Cable and Telecommunications Association ("NCTA") at 5 ("[T]he Commission should affirm that the interconnection provisions of section 251 of the Act afford telecommunications carriers the right to establish IP-to-IP voice interconnection with an incumbent LEC network for the provision of telephone exchange service and exchange access."); Time Warner Cable at 5 ("[T]he Commission should confirm that negotiating IP-to-IP interconnection agreements under Section 251 of the Act is not merely an aspiration, but rather is a fundamental statutory obligation of ILECs."); Charter at 4 ("An ILEC's duty under Section 251(c)(2) to provide interconnection for "any requesting telecommunications carrier . . . at any technically feasible point within the [ILEC's] network" clearly encompasses IP-to-IP interconnection arrangements."). In an earlier ex parte letter, Cablevision and Charter Communications asked the Commission to clarify, that "[S]ection 251(c)(2) and the Commission's rules require incumbent local exchange carriers ("ILEC") to accept traffic from an interconnecting provider in IP format (*i.e.*, provide IP-to-IP interconnection). . .making explicit the existing statutory requirement of IP-to-IP interconnection will ensure that consumers enjoy the full benefits of IP services and networks, and encourage all carriers to migrate to IP-based networks." Letter of Howard J. Symons, Mintz Levin, to Marlene Dortch, WC Docket No. 10-90 *et al*, p. 1 (filed Oct. 12, 2011).

³⁸ National Exchange Carrier Association (NECA), National Telecommunications Cooperative Association (NTCA), The Organization for the Promotion and Advancement of Small

providers,⁴² -- recognize the Commission's statutory authority over IP-to-IP interconnection, almost all referencing the ILECs' obligations under Sections 251 and 252 of the Act.

In the *USF/ICC Transformation Order and FNPRM*, the Commission stated that IP interconnection is "critical" and that it expected carriers to negotiate in good faith in response to requests for IP-to-IP interconnection for the exchange of voice traffic, resulting in

Telecommunications Companies (OPASTCO), and the Western Telecommunications Alliance (WTA) at 38 ("The Commission should clarify that Sections 251 and 252 of the Act govern all interconnection arrangements, including IP-to-IP Interconnection for the purposes of exchanging traffic between carriers."); Alaska Rural Coalition ("ARC") at 17 ("The ARC believes that the Commission's regulation of IP-to-IP networks should remain consistent with its regulation of traditional interconnection. All carriers should remain obligated to interconnect their networks in the most efficient configuration possible and negotiate those contractual relationships in good faith, consistent with the Telecommunication Act obligations outlined in section 251."); Nebraska Rural Independent Companies ("NRIC") at 27 ("NRIC respectfully suggests that the only prudent and legal basis for resolving the issues in ... the *FNPRM* is to apply the time-tested Sections 251/252 interconnection framework. This step will ensure that any migration from TDM to IP-based transmission technologies and then to IP-to-IP technologies is not hampered by those entities with the ability to exercise market power under a new, untried regulatory framework.").

³⁹ COMPTTEL at 13-20; XO at 12-15; Cbeyond *et al* at 20-25; U.S. TelePacific *et al* at 7-14; HyperCube at 2.

⁴⁰ Sprint at 6-7 ("The FCC unquestionably possesses such authority under Title II of the Act if retail IP voice applications are deemed to be telecommunications services. But as Sprint has previously demonstrated, if IP voice applications are instead classified as information services, then the FCC still possesses the authority, under its Title I ancillary jurisdiction, to adopt and enforce interconnection rules for the exchange of IP voice traffic.") In an earlier round of comments, T-Mobile stated that the "Commission needs to ensure that the transition to an IP network is not stymied by an interconnection regime unilaterally established by ILECs and that providers are not prevented from exchanging traffic in an IP format. Reply Comments of T-Mobile, WC Docket No. 10-90 *et al*, at 6 (filed May 23, 2011).

⁴¹ Ad Hoc Telecommunications Users Committee ("Ad Hoc") at i ("Any attempt to undermine regulatory protections simply because network transmission protocols change over time is misguided and arbitrary.")

⁴² Google at 4-5 ("There is little doubt that the FCC has ample statutory authority over IP-to-IP interconnection... The FCC should use its explicit statutory authority to retain jurisdiction as telecommunications carrier networks evolve, rather than needlessly strain the Act by relying upon uncertain and inapt Title I jurisdiction.")

interconnection agreements between carriers.⁴³ Yet, eighteen months later there is no new evidence of an ICA (or amendments to existing ones) being entered into by AT&T and Verizon that addresses VoIP interconnection. While Verizon claimed it had a single agreement in early 2012, it was only filed with the state commission in response to a complaint and that “agreement” is now in question. Moreover, after all these years, and only after a group of competitors filed a complaint with the Massachusetts Department of Telecommunications and Cable, Verizon is now sending the complainants offers of possible “commercial agreements” for VoIP interconnection.⁴⁴ This demonstrates that it is only the threat of regulatory action that spurs a response from Verizon (and it is not clear even this would cause any change in the behavior of other other RBOCs). Furthermore, this offer would not afford the protections of Sections 251/252 as Congress intended. Indeed, Congress required interconnection in the 1996 Act because it understood the history of the industry and that competition itself does not ensure interconnection between providers, especially where some are much larger than others, and possess market power. Sections 251/252 provide for interconnection at any technically feasible point, at just and reasonable rates, and the opportunity for arbitration where the parties’ negotiations fail. These protections continue to be necessary even as the PSTN transitions to IP transmission technology.

⁴³ *USF/ICC Transformation Order and FNPRM* ¶¶ 1010-11 (also stressing the “essential importance” of the interconnection of voice networks).

⁴⁴ *See supra* n. 17.

In addition, AT&T has no known IP interconnection agreements. When Cbeyond made a request to exchange local traffic via IP technology, AT&T refused its request.⁴⁵ AT&T also refused Sprint's request to amend its interconnection agreement to provide for the exchange of voice traffic in IP.⁴⁶ Before the Public Utilities Commission of Ohio, AT&T claimed that "nothing in [the *USF/ICC Transformation Order and FNPRM*] explicitly tied the FCC's 'expectations' [of good faith negotiations] to any affirmative statutory obligation..."⁴⁷ It is apparent that the Commission must address the IP policy framework, confirming that Sections 251 and 252 apply. Commission focus on conducting a technical or regulatory "trial" would only further delay consumers reaping the benefits that will result from IP-to-IP interconnection.

II. The Delay is Not Caused by Technical Difficulty; It is the Result of the Failure to Implement the Act in a Technology Neutral Manner.

As the *Notice* recognizes, VoIP interconnection has been happening all over the world "at a rapid rate" yet it has been delayed in this country notwithstanding "*the efforts of some cable*

⁴⁵ See Declaration of Tony Insinga on behalf of Cbeyond Communications, LLC (dated Jan. 24, 2013), Attachment A, to Comments of Cbeyond, *et al*, GN Docket No. 12-353, filed Jan. 28, 2013.

⁴⁶ AT&T Position in the Decision Points List, AT&T Illinois' Response to Petition for Arbitration, Before the Illinois Commerce Commission, SPRINTCOM, INC., WIRELESSCO, L.P., NPCR, INC. D/B/A NEXTEL PARTNERS, AND NEXTEL WEST CORP. Petition for Arbitration, Pursuant to Section 252(b) of the Telecommunications Act of 1996, to Establish an Interconnection Agreement With Illinois Bell Telephone Company d/b/a AT&T Illinois, Docket No. 12-0550 ["The ICA should not provide for IP-to-IP interconnection...any traffic that Sprint carries on its network in IP formation and wishes to deliver to AT&T must be converted to TDM format before Sprint delivers it to AT&T's TDM network."]

⁴⁷ Application for Rehearing of the AT&T Entities, BEFORE THE PUBLIC UTILITIES COMMISSION OF OHIO, In the Matter of the Commission's Review of Chapter 4901:1-7 of the Ohio Administrative Code, Local Exchange Carrier-to-Carrier Rules, Case No. 12-922-TP-ORD, p. 9 (Nov. 30, 2011).

*companies and competitive local exchange carriers.*⁴⁸ This is because the delay is not technical – and therefore cannot be resolved by technical trials. Rather, as discussed above, it is the result of the largest ILECs (the RBOCs) flouting the Act’s interconnection obligations. The data clearly show that these ILECs serve the largest share of PSTN subscribers⁴⁹ and, therefore, are the largest traffic exchange partners for competitive carriers. “Without the certainty of cost savings based on well-defined, quantifiable and justifiable traffic volumes (which, by definition, includes traffic exchanged with the ILEC), carriers would be unlikely to undertake the initial costs of transition.”⁵⁰ In other words, the primary driver to investing in IP interconnection capabilities is the ability to spread capital costs over the largest possible traffic volumes, which are unquestionably found on the interconnection facilities with the ILECs and, in particular, the largest ILECs (the RBOCs).

Therefore, in order to successfully transition the PSTN to IP, the Commission’s focus with regard to interconnection must first be on the competitors’ ability to interconnect with the

⁴⁸ *Notice* at 4.

⁴⁹ The FCC’s most recent local competition report indicates that the PSTN (defined here as retail switched access lines and VoIP subscriptions) consists of just over 141 million retail local telephone connections (as of June 2012). Source: Local Telephone Competition, Status as of June, 2012, Industry Analysis Division, Figure 1, page 2. Of this, AT&T, Verizon and CenturyLink (the ILECs that coincidentally seek to escape their interconnection obligations) serve 51% of the total connections. Sources: AT&T 10Q 2Q2012 at 18; Verizon 10Q 2Q2012 at 30; and CenturyLink 10Q2012 at 30. If the “PSTN” is defined to include mobile subscriptions, AT&T and Verizon (including their mobile affiliates), as well as CenturyLink, serve 61% of the total connections. Sources: AT&T 10Q 2Q2012 at 18; Verizon 10Q 2Q2012 at 27; and CenturyLink 10Q2012 at 30.

⁵⁰ Attachment B, p. 2

largest ILECs (that have these capabilities)⁵¹ over managed networks on an IP basis for all voice traffic, regardless of the end-point technology used by subscribers of the ILEC (*i.e.*, TDM or IP).⁵² The elements of VoIP Interconnection are already known. Attachment B identifies, explains, and for the most part provides the answer for the basic issues that need to be addressed in a VoIP interconnection agreement. As stated above, the Commission should simply confirm that interconnection for VoIP services (as we have defined in these comments) are subject to the Act and, in accordance with the Act, it is the states' responsibility to arbitrate any disputes. If, however, the Commission wants to further facilitate the transition, after declaring that Sections 251 and 252 control, it could also oversee a negotiation of a master agreement between competitors and an RBOC which, in accordance with the Act, could be submitted to the states for approval and available for other carriers to opt-into or use as a template for State negotiations under the Act. COMPTTEL believes this additional action, with a managed negotiation timeframe of six months, could potentially speed the IP transition.

a) *The importance of managed networks for voice services.*

“Managed IP network” refers to IP networks that are aware of the particular network behaviors and performance requirements of different categories of traffic.⁵³ Managed IP networks were created to provide guaranteed network performance and behavior at a level sufficient to support the services that require them, such as voice communications. For example

⁵¹ We are referring to ILECs that don't meet the rural exemption provision of the Act 47 U.S.C. § 251(f) and that have themselves or through an affiliate (or other similar entity) deployed managed IP networks.

⁵² The importance of including all voice traffic in a VoIP interconnection arrangement is discussed in more detail in Attachment B.

⁵³ Attachment B at 3, n. 4.

voice traffic (real-time traffic) requires different network performance than transactional traffic or bulk transfer traffic.⁵⁴ Unlike managed IP networks, the Internet cannot provide service-level guarantees, which is why it is referred to as a “best efforts” network. In this context, the term “best efforts” refers to a system of congestion control based on the principal of “first come, first routed” versus the ability to better match performance to the particular needs of different information flows obtained through traffic management techniques.⁵⁵ While consumers have grown to understand that there are times their computers may not respond when they are attempting to access a website because of traffic congestion on the Internet, they have higher expectations with regard to their voice conversations over the phone.⁵⁶

Consequently, managed voice services remain the dominant form of voice communications in the U.S., even when just looking at IP voice service. While some consumers may find an OTT voice service sufficient for their needs, the majority do not. This conclusion is supported by the fact that OTT VoIP subscribers are less than ten percent of all U.S. VoIP subscribers. Indeed, the FCC reported 37 million interconnection VoIP subscriptions at the end of 2011,⁵⁷ and USTELECOM estimates there to be a mere 3.5 million of OTT VoIP lines.⁵⁸ For

⁵⁴ *Id.* at 3.

⁵⁵ See NRRI white paper entitled “The Transition to an All-IP Network: A Primer on the Architectural Components of IP Interconnection” available at <http://communities.nrri.org/documents/317330/7821a20b-b136-44ee-bee0-8cd5331c7c0b>.

⁵⁶ Consumers have sacrificed some quality of service in exchange for mobility, but would not expect to have to sacrifice quality of service because of an advancement of fixed technology. Advanced technology should, and in a managed environment would, bring better service quality.

⁵⁷ See Local Telephone Competition, Status as of December 31, 2011, Industry Analysis and Technology Division, Wireline Competition Bureau, January 2013, p. 1 (“FCC 2013 Local Competition Report”).

⁵⁸ See USTELECOM, “Evidence of Voice Competition and ILEC Non-Dominance Mounts,” April 2, 2013, at 8 (“*UST Brief*”). Available at: <http://www.ustelecom.org/news/research->

additional context, Vonage (the largest OTT provider of VoIP services) had only 2.4 million lines in service as of December 31, 2012.⁵⁹ Accordingly, nine times the number of consumers choose facilities-based VoIP providers than those served by over-the-top providers.⁶⁰ Indeed, AT&T and Verizon's own product design and marketing demonstrate the need to assure customers that their voice service is not an Internet voice service. AT&T confirms to its customers that "AT&T U-verse Voice service is provided over AT&T's world-class managed network *and not the public Internet.*"⁶¹ Likewise, Verizon explains to its customers that to "understand the features and quality of FiOS Digital Voice, you first need to know that the service is not the same as the services you get with a little Internet adapter for your modem and phone, and it *does not ever touch the public Internet.*"⁶²

In fact, this deficiency of the Internet to serve as the foundation for PSTN-equivalent services is well understood and accepted by all global communication standards organizations.

[briefs/ustelecom-research-brief-april-4-2013](#). COMPTTEL does not endorse the USTELECOM analysis (which generally understates ILEC dominance).

⁵⁹ Investor Relations, How many Vonage lines are in service?, at <http://ir.vonage.com/faq.cfm>. USTELECOM estimates that Vonage alone represents 75% of the independent (i.e., non-ILEC and non-cable) VoIP industry (which would mean that Vonage serves an even larger percentage of the over-the-top market because CLECs, in addition to cable and ILECs, provide facilities-based VoIP service). See *UST Brief at 6*.

⁶⁰ This is assuming that each of the 3.5 million over-the-top lines was reported to the FCC and included in the nearly 37 million VoIP subscriptions referenced above.

⁶¹ AT&T: How AT&T U-verse Voice is different from the digital voice products of other providers, available at <http://www.att.com/esupport/article.jsp?sid=KB401031#fbid=L8RYx19uzva> (emphasis added).

⁶² Verizon Press Release, "FiOS Digital Voice: Here's How It Works, Verizon's Managed IP Network Links Customers' Homes to Softswitch and Applications Service, Enabling Innovative Services," June 3, 2010, available at <http://newscenter.verizon.com/press-releases/verizon/2010/fios-digital-voice-heres.html> (emphasis added).

The ITU-T, the 3GPP, 3GPP2, GSMA, ATIS and CableLabs are all standards organizations that recognize the need for managed IP networks in support of voice services as we move to a next-generation technology model.⁶³

b) VoIP interconnection should be available to serve all voice PSTN traffic.

VoIP Interconnection with an ILEC's managed IP network should be available to support all voice traffic, regardless of whether the ILEC's subscriber is served via TDM or VoIP. Just as today a CLEC can use TDM interconnection to reach all of an ILEC's customers, including those subscribing to VoIP services, a CLEC should be able to use a VoIP interconnection point to similarly connect with all of the ILEC's customers, including those served by circuit switches.⁶⁴ The fact that some traffic may be IP-to-TDM (or vice versa) does not affect whether the traffic would fall within the protections of the Act. IP-to-IP end-user traffic clearly falls under the interconnection provisions of the Act, as there is no net protocol conversion. As COMPTTEL has previously explained, traffic that is converted from IP to TDM (or vice versa) also falls under the Act.⁶⁵ Indeed, IP-to-TDM (or vice versa) traffic is being exchanged today over TDM interconnection arrangements established through interconnection agreements pursuant to the Act.

⁶³ See Attachment B at 2-3.

⁶⁴ During the transition, both forms of interconnection should exist simultaneously.

⁶⁵ See Comments of COMPTTEL, *In the Matter of Connect America Fund*, WC Docket No. 10-90, at 17-24 (filed Feb. 24, 2012); See also, Letter of Karen Reidy, COMPTTEL, to Marlene Dortch, FCC, WC Docket Nos. 10-90, 07-135, 05-337, 03-107, GN Docket No. 09-51, CC Docket Nos. 01-92 and 96-45, with Attachment, filed Aug. 17, 2012. We note that in most IP-to-TDM, or TDM-to-IP traffic as well, there is no net protocol conversion *to the end-user*, who continues to connect through the exact same interface of analog signal at an RJ-11 jack. Because such end-users experience the exact same interface whether or not the carrier ultimately uses IP or TDM technology, there is no net protocol conversion experienced by the end-user.

It is not only the law, it is good public policy. Attachment B explains in detail why a VoIP interconnection arrangement should be available for the exchange of all traffic, irrespective of the technology used to serve the end-user customers.⁶⁶ While we will not repeat that analysis here, the bottom line is that allowing an interconnection arrangement to be used for all traffic maximizes the efficiency of the interconnection and simplifies the engineering. For example, VoIP interconnection can immediately and dramatically reduce service provider capital and operating costs, by as much as 90%.⁶⁷ But these savings are only fully realized when VoIP interconnection is used to reach all of the ILEC's end-users (*i.e.*, those served via TDM or IP).⁶⁸ These savings would then be available to carriers to support additional investments in broadband facilities, thereby further promoting the transition to an all-IP PSTN and ultimately bringing more innovative services to consumers.

c) *Existing signaling systems and numbering databases would support VoIP interconnection*

The Commission also sought comment on a potential trial on numbering issues and related database modifications. While restructuring of the LERG may be necessary for future service demands,⁶⁹ significant changes are not required to implement the much needed immediate transition from TDM to VoIP interconnection for existing PSTN traffic.

⁶⁶ Attachment B at 3-4

⁶⁷ Attachment B at 3, *citing* Comments of COMPTTEL, *In the Matter of Facilitating the Deployment of Text-to-911 and Other Next Generation 911 Applications, Framework for Next Generation 911 Deployment*, PS Docket Nos. 11-153, 10-255, Attachment, "IP INTERCONNECTION FOR MANAGED VOIP" April, 2011, at 21-22 (filed Dec. 12, 2011) ("*COMPTTEL Interconnection Cost Analysis*").

⁶⁸ Attachment B at 3-4.

⁶⁹ For example, advance features such as Call Continuity during transfer (to a different media, such as from wireless to wireline) as well as more efficient functional support for existing

As discussed more fully in Attachment B, signaling systems and database modifications raise issues that are not necessary to resolve in order to achieve VoIP interconnection. The existing SS7 system and LERG can be configured in such a way to support VoIP interconnection for existing PSTN services and traffic. Moreover, future changes to the database and signaling systems would be more rapidly introduced, once RBOC-to-competitor interconnected IP networks are operational. Most importantly, while VoIP interconnection can be implemented today, work on the databases and signaling systems for the future would be better delayed until there is greater understanding of the new services and capabilities that carriers will introduce over time. If we were to fail to sufficiently consider the needs of future advanced voice services before designing, sizing and building new signaling networks and databases, we may be forced to re-engineer them again. Consequently, it is better to wait until the transition is further along, to a point where IP networks are sufficiently deployed to encourage the emergence of services that take advantage of their greater capabilities, so that database and signaling modifications can be developed with these new capabilities in mind.

Moreover, restructuring databases now would also substantially delay the transition, as signaling systems and databases are complex and the design and migration process will be time-consuming. The databases used in today's PSTN have benefited from decades of development and testing, where functionality was introduced gradually, with minimal traffic at the time of introduction. These systems have matured to provide a highly reliable, inter-working platform for real-time access to routing and subscriber information by all PSTN participants for all current PSTN traffic. Further, the automated systems that create, modify, delete and access this information have also benefited from decades of experience, gaining functionality and reliability

services such as Distributed Auto-Attendant, Follow Me, Personal Directory and others. *See* Attachment B, n. 10.

improvements along the way. To supplant those systems, then introduce the volume of traffic present on the PSTN in short order, could cause a systemic failure of the PSTN in transition to IP. These systems are complex and proper regression testing will require time. As noted above, the transition to VoIP Interconnection and transport does not require any significant change to these databases; therefore, any time spent waiting for database conversion efforts to conclude would be time wasted.

The Commission would also be ill advised to subject the transition to further unwarranted delay, risk of failure, and duplicate costs all to restructure database systems that are perfectly capable of handling the immediate need of supporting the exchange of PSTN traffic in IP format.

d) Minimum technical and operational elements of VoIP interconnection to be addressed by an ICA.

The core elements of VoIP Interconnection are already known. Attachment A outlines the basic issues that need to be addressed in a VoIP interconnection agreement. What is needed is the framework to negotiate these agreements, not a trial as to what technical approaches work.⁷⁰ The functional acceptability, by certificated PSTN carriers, of VoIP technology has been operationally evident for more than a decade.

There may be areas of disagreement, but these questions are better left for negotiation and arbitration rather than a “trial.” For example, one of the primary issues will be points of interconnection. The ILEC is statutorily required to provide any requesting carriers

⁷⁰ As discussed in Attachment B, it may ultimately be useful to conduct testing of the administrative and operational procedures and practices, already resident or yet to be created within the Operational Support Systems of the interconnected providers, to ensure the orderly transition of the PSTN to VoIP technology. But it is virtually impossible to develop test plans or test scenarios of even these OSS processes and procedures without a clear understanding of the underlying responsibilities of each party in a production environment after an interconnection agreement has been negotiated. It is also unclear that the Commission would be the appropriate entity to oversee such testing.

interconnection “at *any* technically feasible point” within the ILEC’s network. AT&T and Verizon have facilities in their network capable of VoIP Interconnection. For instance, as shown in Attachment A, Figure 1, AT&T uses Border Elements (*i.e.*, Session Border Controllers) to interconnect to some of its own commercial customers on an IP basis. As further explained in Attachment A, these same Border Elements could easily be configured to serve as points of interconnection for intercarrier VoIP traffic exchange. Therefore, they represent technically feasible points within AT&T’s network that should be made available to competitors for traffic exchange.

Finally, to the extent these same Border Elements can be accessed simply by configuring a pathway on AT&T’s managed IP network, virtually any point on the network itself can serve as a technically feasible point of interconnection for intercarrier VoIP traffic exchange. We note that AT&T never requested a trial before introducing the end-user services that depend upon interconnection through a Border Element; we see no reason why its carrier-interconnection should be held hostage to a trial now.

Conclusion

The technical feasibility of VoIP interconnection has already been established. The largest ILECs (the RBOCs) have the facilities in their networks to exchange voice traffic over the PSTN with other carriers on an IP-to-IP basis. All that is truly needed to move the industry forward in the transition is for these ILECs to comply with the interconnection provisions of the Act by amending their existing interconnection agreements to address VoIP interconnection. Consumers should not have to wait any longer to reap the benefits of this new technology. Accordingly, the Commission should address the IP policy framework and confirm that Sections 251 and 252 apply.

/s/ Karen Reidy
Angie Kronenberg
COMPTEL
900 17th Street, NW
Suite 400
Washington, D.C. 20006
(202) 296-6650 phone

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