

**COMPTEL's Response to Questions in House Energy and Commerce White Paper**  
**"Network Interconnection"**

COMPTEL, the leading industry association for competitive communications service providers, submits its response to the questions in the Committee on Energy and Commerce's fourth white paper, which focuses on "Network Interconnection." For more than 30 years, COMPTEL and its members have advocated for pro-competitive policies that will ensure *all* consumers benefit from the innovation and investment that robust competition brings to the communications marketplace.

As discussed in COMPTEL's response to the Committee's first white paper "Modernizing the Communications Act,"<sup>1</sup> it is important that any examination of the nation's communications laws focus on a core set of principles that:

- Ensure competition, universal service, and public safety and security
- Ensure consumers have unfettered access to networks and content, and
- Ensure technology neutral, competitive interconnection policies

Interconnection of networks is key for all the above principles to be fulfilled. Indeed, interconnection is the equivalent of the First Amendment free speech rights for all networks. Without the requirement of interconnection, business and residential consumers' ability to access any network (whether wired or wireless), service, and the content they wish will be hampered.

Indeed, when Congress passed the 1996 Act, the goal was to create a "network of networks" that would all be interconnected, allowing cable systems, long distance, local phone service, and new entrants to compete in each other's markets, especially where competition had previously been prohibited. Combined with Congress' actions in 1994 to expand the wireless market to new entrants

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through competitive spectrum auctions to break up the then-duopoly, the actions in 1996 effectively ended monopoly era communications policy, and removed regulatory barriers to competition. As a result, the U.S. economy experienced an increased amount of investment in the communications industry to the tune of an estimated \$1.2 trillion. This amount of investment and innovation would not have been possible if the largest of the incumbent carriers had been allowed to restrict competitive entry and either deny interconnection outright, or set conditions on interconnection that would make competing in a particular market economically impossible for smaller companies. Congress' direction to include technologically neutral, "rules of the road" to ensure non-discrimination and reasonable rates, terms, and conditions was, and continues to be, the light touch needed for free, functioning, and competitive markets.

In fact, the significant inroads that mobile wireless providers have made in the marketplace for offering mobile voice services is a direct result of Congress' technology-neutral interconnection policy in the Act. Wireless companies were granted the right to request interconnection with wireline companies. The Federal Communications Commission's voice roaming policy also has promoted further use of mobile phone service. As a result, today almost every American has a mobile phone.

As the Committee examines our communications laws, it should consider the fact that a vast majority of the communications industry favors these common sense "rules of the road" in the Act to ensure all networks are interconnected and consumers can choose any service provider and access any content they wish. Traditional competitive services providers, cable, wireless, and rural providers are all on record supporting reasonable interconnection policies that allow the market to function, regardless of the technology employed.<sup>2</sup>

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<sup>2</sup> See <http://thehill.com/blogs/congress-blog/technology/312901-put-sound-policy-before-technology>

COMPTEL's members continue to be at the forefront of innovation in the marketplace. Our members are the fiber, cloud computing, wireless, cable, tower, and rural providers that continuously drive the development and deployment of technologies that are changing how services to consumers and businesses are created and delivered. In fact, several of our members already offer *all* IP services. The availability of interconnection to deliver voice services on just and reasonable terms have been critical to the success of these companies to date. Consumers, both residential and business, desire to purchase a bundle of services from their service providers, including voice, broadband, and in the case of business customers, data services. Accordingly, the delivery of those services necessarily involves interconnecting with other providers and their networks.

Even though the interconnection provisions in the Act—which cover all telecommunications carriers—have worked well for voice services, over the past five years, there has been a persistent agenda by some large ILECs to disavow the interconnection requirements of the Act for managed VoIP services. The majority of competitors have long-recognized the superior advantages of serving their subscriber base via IP technology and, as described above, many do so. In contrast, however, the ILECs serve merely 10% of their wireline voice traffic subscriber base via this new advanced technology.<sup>3</sup> Thus, the largest ILECs, while capable of exchanging traffic in IP, have an incentive to keep interconnection arrangements with voice traffic exchange partners in TDM format, until they progress in technology. They also have a financial incentive to refuse to negotiate interconnection agreements pursuant to the Act, as we describe further in our response to question six. As such, the three largest ILECs are effectively holding up the rest of industry's progression to a more advanced technology that offers significant innovation and substantial cost savings. They argue that the basic rules of interconnection no longer

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<sup>3</sup> Federal Communications Commission "Local Telephone Competition: Status as of June 30, 2013," Industry Analysis and Technology Division Wireline Competition Bureau June 2014, p. 5, Figure 4 (2014 Local Competition Report").

apply because of new technologies and, thus, refuse to interconnect under the Act—the exact problem Congress was trying to avoid in establishing interconnection obligations in the first place. Residential and business consumers, edge providers, and forward-looking competitive carriers suffer, since IP interconnection is what will allow end-users to experience the innovation of IP, and carriers the cost savings of a superior technological interconnection framework. The promise of new technologies increases—rather than decreases—the need to maintain basic rules to ensure that the *physical facilities* (wireline, wireless, etc.) continue to interconnect and do so in the most efficient manner and at just and reasonable rates.

*In addressing a number of the assumptions in the “White Paper,” let us consider the facts. First, the vast majority of voice services are not applications that transit public data network platforms, such as the Internet. Simply because a voice service uses Internet Protocol-based (IP-based) technology does not mean that the service transits the Internet, or is accurately described as an Internet application. The nature of the telephone call or communication does not change merely because a carrier uses IP technology. Indeed, 89% of interconnected VoIP subscriptions are for a traditional *managed* voice service provided over a private, managed IP network, not an over-the-top (“OTT”) service<sup>4</sup> – meaning the traffic does not traverse the public Internet, and the traffic cannot be exchanged through the same peering/transit arrangements used for Internet traffic. Private, managed IP networks are necessary because they provide the high quality of voice service the market demands, as demonstrated by the*

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<sup>4</sup> 2014 *Local Competition Report*, p. 7, Figure 5. The FCC does not directly collect and report statistics that distinguish between managed and OTT networks. However, the FCC requires providers to separately report nomadic and non-nomadic VoIP subscriptions. For all practical purposes, nomadic VoIP subscriptions (which are operational on any broadband connection) are OTT applications; conversely, non-nomadic services correspond with a managed architecture. Consequently, the statistics reported by the FCC that distinguish between nomadic and non-nomadic voice subscriptions are the equivalent of requiring providers to report OTT and managed services.

advertising of AT&T and Verizon for their managed voice services—U-verse and FiOS<sup>5</sup>—and by the fact that there are over 130 million wireline subscribers to a managed voice service.<sup>6</sup>

As illustrated by the attached diagram, in managed IP networks the exchange of voice traffic flows and interconnects in IP format, but separately from Internet traffic even though both may share the same physical facility for part or all of the journey. The concept that the same physical *facilities can and already support* various types of *logical* networks is not novel to the IP transition.<sup>7</sup> These logical networks include *unmanaged* networks such as the Internet, as well as *managed* IP networks such as managed VoIP and video services. These are not simply three applications sharing the same “pipe” (such as when you have various applications riding the Internet). These are three distinctly separate logical networks unaware of the existence of, and incapable of interacting with, each other. Logical networks can be thought of as individual inner “pipes” within a common physical sleeve. Consequently, the interconnection for these logical networks are and will remain separate from each other.

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<sup>5</sup> 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](http://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.”

<sup>6</sup> *2014 Local Competition Report* at 3 and 7. Switched access lines are included in the total number of managed lines because circuit switch technology is inherently a managed network that specifically designed around the unique needs of real-time voice service.

<sup>7</sup> Obviously, one of the major attributes, and the primary source of beneficial economic and operational improvements gained through the use of IP technology is the ability to share the same physical facilities (*i.e.* fiber, copper, poles, conduit, etc.) among separate, isolated logical networks in a highly efficient manner.

Second, the change in technology does not *per se* alter the advantages of the largest incumbents. Specifically, the change in technology does not alter the size and ubiquity of the largest incumbents' networks, nor does it change the size of their subscriber base. The same physical infrastructure that has supported TDM-based services over the decades supports IP-based services. This network consists of trenches, poles, rights of way, conduits, fiber, copper loops, spectrum licenses, municipal permitting for disruptions of streets and pavements, easements, right of access to buildings, and all the other necessary inputs for any network. The economics of replicating this network have not changed, as the most significant costs of providing service lie with the physical infrastructure, not with higher layers that electronically define and control traffic flow.

Moreover, the majority of subscribers still subscribe to the incumbent LEC.<sup>8</sup> Significantly, the incumbent's market share is effectively consolidated in a *single* provider, while the competitors share is spread among *multiple competitors*. For example, according to the FCC's Local Competition Report, in the District of Columbia the single incumbent LEC (Verizon) has 59% of the total end-user switched access lines and VoIP subscriptions, while the remaining 41% of the market is divided among 99 *competitors*.<sup>9</sup> Disparity in *relative* size between the incumbent in its region, and each individual

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<sup>8</sup> According to the FCC's most recent local competition report there were just over 135 million retail local wireline telephone connections (retail switched access lines and VoIP subscriptions) as of June 2013, the majority of which still subscribe to the incumbent LEC.<sup>[1]</sup> *2014 Local Competition Report*, at 4, Figure 3. When including mobile subscriptions there are 441million total connections (Source: *2014 Local Competition Report*, at 2, Figure 1), of which AT&T and Verizon (including their mobile affiliates), serve *at least* 62% of the total connections (which does not appear to include all wholesale subscriptions such as CenturyLink reselling Verizon's wireless service). Sources: SEC 10Q Reports (2Q 2013) for AT&T at 27, and Verizon at 29.

<sup>9</sup> See *2014 Local Competition Report* at pp. 20 (Table 9) and 28 (Table 17).

competitor is one factor that creates the conditions for discrimination that the interconnection provision of the Act is intended to prevent.

Switching the technology to serve a customer from TDM to IP does not constitute a loss of that customer. As the Commission has found consumers view interconnected VoIP services the same as traditional voice telephone services.<sup>10</sup> In fact, as AT&T recently responded to Congress that its own market research shows that *in many cases consumers who use VoIP do not even realize that they are using a VoIP service (as compared to plain old telephone service).*<sup>11</sup>

Consequently, the change in technology does not change the need for application of existing requirements. The significance of this issue is demonstrated by the fact that there has seldom been such broad support in the industry across service providers as there has been—such as by cable

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<sup>10</sup> See Report and Order and Further Notice of Proposed Rulemaking, *Connect America Fund et al*, WC Docket No. 10-90 *et al*, FCC 11-161, ¶ 946, n. 1906 (2011)(“ICC/USF Transformation Order and FNPRM”), *citing Telephone Number Requirements for IP-Enabled Services Providers; et al.*, WC Docket Nos. 07-243, 07-244, 04-36, CC Docket No. 95-116, Report and Order, Declaratory Ruling, Order on Remand, and Notice of Proposed Rulemaking, 22 FCC Rcd 19531, 19547, ¶ 28 (2007) (recognizing that interconnected VoIP services increasingly are viewed by consumers as a substitute for traditional telephone services).

<sup>11</sup> See Letter from Keith K. Krom, AT&T, to Charlotte Savercool, Committee on Energy and Commerce, Mr. James Cicconi’s Responses to the Questions for the Record, at 3 (Jan. 16, 2014).

providers,<sup>12</sup> rural carriers,<sup>13</sup> wireless carriers<sup>14</sup> and traditional competitive LECs<sup>15</sup>—on the need for application of the interconnection provisions of the Act to IP interconnection for managed voice

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<sup>12</sup> See e.g., Comments filed *In the Matter of Connect America Fund, et al*, Before the Federal Communications Commission, WC Docket No. 10-90 *et al*, filed on Feb. 24, 2012 by the following representative in the cable industry: National Cable and Telecommunications Association (“NCTA”) at 5 (“...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 (“... 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 Communications 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.”). See also Letter of Howard J. Symons, Mintz Levin, on behalf of Cablevision and Charter Communications, to Marlene Dortch, WC Docket No. 10-90 *et al*, p. 1 (filed Oct. 12, 2011) (“[S]ection 251(c)(2) requires ILEC to provide IP-to-IP Interconnection...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.”).

<sup>13</sup> See e.g., Comments filed *In the Matter of Connect America Fund, et al*, Before the Federal Communications Commission, WC Docket No. 10-90 *et al*, filed on Feb. 24, 2012 by the following rural carrier associations: National Exchange Carrier Association (NECA), National Telecommunications Cooperative Association (NTCA), The Organization for the Promotion and Advancement of Small Telecommunications Companies (OPASTCO), and the Western Telecommunications Alliance (WTA) at 38 (“...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 (“[R]egulation of IP-to-IP networks should remain consistent with [] 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 (“...Sections 251/252 interconnection framework...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 ...”).

<sup>14</sup> See e.g., Comments filed *In that Matter of Technology Transition Task Force*, Before the Federal Communications Commission, GN Docket 13-5, filed on July8, 2013 by the following wireless providers: Sprint at 12 (“The Commission should reaffirm that all Section 251 and 252 obligations extend to the exchange of traffic [via] IP interconnection.”); T-Mobile at 7-10 (“The record developed in response to the AT&T and NTCA IP transition petitions demonstrate why carriers’ negotiations toward IP interconnection agreements must occur with a clearly defined regulatory backdrop... T-Mobile previously demonstrated that the Commission has authority to oversee IP interconnection under Sections 251, 252 and other provisions of the Act.”)

<sup>15</sup> See e.g., Comments filed *In the Matter of Connect America Fund, et al*, Before the Federal Communications Commission, WC Docket No. 10-90 *et al*, filed on Feb. 24, 2012 by the following competitive carriers: COMPTTEL at 13-20; XO at 12-15; Cbeyond *et al* at 20-25; U.S. TelePacific *et al* at 7-14.

services. It is well documented that the noncompliance with the rules by the major ILECs has greatly hindered the IP transition.<sup>16</sup> As the Federal Communications Commission has found, 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 companies and competitive local exchange carriers.*”<sup>17</sup> Similarly, the FCC’s Technology Advisory Council’s (“TAC”) Working Group on VoIP Interconnection recognized that VoIP interconnection is growing as a result of competitors including cable, but being delayed by commercial and policy considerations.<sup>18</sup> Competitors have been asking the FCC to address this issue since 2009. As the competitors explained to the FCC, instead of agreeing to interconnect and exchange traffic on an IP-basis, the major ILECs have required competing carriers to convert traffic to legacy TDM-format prior to delivering it to the ILEC, even where the ILEC itself had

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<sup>16</sup> See e.g., Comments filed *In the Matter of Technology Transition Policy Task Force*, Before the Federal Communications Commission, GN Docket No. 13-5, on July 8, 2013, by the following parties: Matrix Telecom at 5 (Specifically, the remaining impediment is the refusal of the RBOCs to negotiate agreements for IP interconnection pursuant to the framework of sections 251 and 252 of the Act.”); Peerless Networks at 6 (“Competitive carriers have difficulty *only* with directly connecting in IP format with ILECs and their affiliates.”) *emphasis added*; Sprint at 7 (“The fact that Sprint has yet to obtain IP-to-IP interconnection for voice traffic from any of the major ILECs is evidence of their unwillingness to comply with their obligations under the Act.”); Bullseye Telecom and Access Point (“Bullseye Telecom *et al*”) at 12-13 (“The impediment remains the refusal of the RBOCs to negotiate IP agreements under the framework of Sections 251 and 251 of the Act.”); XO Communications at 8 (“Managed IP interconnection is far from ubiquitous at this time, in part because most ILECs refuse to abide by interconnection obligations under Section 251 of [the Act], to exchange IP-based voice traffic with requesting carriers.”); T-Mobile at (“For T-Mobile [VoIP Interconnection] is typically with wireless carriers, cable operators, and [CLECs] rather than [ILECs] with whom, in T-Mobile’s experience, it has been exceedingly difficult to negotiate IP interconnection agreements.”); Cablevision at 2 (While Cablevision has successfully negotiated IP interconnection agreements with competitive providers and IXCs, it has been unable to obtain IP interconnection from the ILECs.)

<sup>17</sup> *Technology Transitions Policy Task Force Seeks Comment on Potential Trials*, GN Docket No. 13-5, Public Notice, DA 13-1016, p.4 (Technology Transitions Policy Task Force, p. 4 (2013)(emphasis added).

<sup>18</sup> Federal Communications Commission Technical Advisory Council, TAC Memo – VoIP Interconnection, at 1-2 (Sept. 24, 2012)( *emphasis added*)(“As a working group, we have posited that delays in VoIP Interconnection are largely due to policy and commercial issues, not technology issues... VoIP Interconnect is happening all over the world, at a rapid rate. VoIP Interconnection is growing in the USA due to efforts by MSOs and CLECs. This reinforces the point that deployment is technically feasible today but is largely being delayed due to commercial and policy considerations.”)

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.<sup>19</sup> The FCC has confirmed that ILECs have a good faith duty to negotiate IP interconnection agreements:

The duty to negotiate in good faith has been a longstanding element of interconnection requirements under the Communications Act and does not depend upon the network technology underlying the interconnection, whether TDM, IP, or otherwise. Moreover, we expect such good faith negotiations to result in interconnection arrangements between IP networks for the purpose of exchanging voice traffic.<sup>20</sup>

However, the large ILECs continue to refuse to negotiate pursuant to the Act's interconnection provisions, presumably claiming that they are overly burdensome and do not apply.

But the Act's interconnection provisions are not overly burdensome. Indeed, they have provided important incentives and protections that benefit consumers directly by promoting competition. Indeed, it's the interconnection of networks—no matter their technology—that has advanced mobile wireless networks and calling and that has supported more than 40% of residential consumers to rely solely on their mobile phones.

IP interconnection is less complex, requiring far fewer points of interconnection than TDM interconnection. The Act's provisions allow parties to negotiate agreements, but provide for arbitration through state agencies if negotiations fail. The filing and review of the agreements by states agencies confirm that carriers that are not party to the agreement are not being discriminated against and that the public interest—namely the consumer's interest—is being served. If carriers reach an agreement, the filed agreement can serve as the model for other agreements, saving the industry time and cost of

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<sup>19</sup> Letter of William H. Weber, *Cbeyond, et al*, to Marlene Dortch, GN Docket No. 09-51, p. 1, filed Sept. 22, 2009.

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

negotiations and arbitration. Indeed, far more agreements are opted into than arbitrated.

Consequently, the public filing and availability of contracts is a critical feature of the competitive landscape.

It is crucial that the Federal Communications Commission and the state commissions continue to maintain *and fulfill* their role under the Act with regard to interconnection agreements so that consumers are able to reap the benefits of the transition of the nation's networks to this innovative IP technology and to ensure a competitive market is sustained and promoted and that consumers continue to have a choice in providers.

Competitive carriers have been at the forefront of the IP transition, investing in IP networks and offering IP-based services to their customers for well over a decade. Indeed, some of COMPTTEL's members are all IP and have been so for over a decade. Consumers' realization of the benefits of IP technology hinges on competitors' ability to obtain just and reasonable terms for interconnection from the large ILECs. One of the critical factors to eliminating barriers to the industry's transition to IP (such as competitors having to downgrade their services to TDM technology in order to exchange traffic with the incumbent) is ensuring that the pro-competitive interconnection provisions of the Act are enforced. This will make certain that competition will not be stifled once the technology transitions—that are well underway—are complete.<sup>21</sup>

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<sup>21</sup> In addition, as we discuss further below in response to question seven, recent developments in the Internet interconnection marketplace should be closely scrutinized by policy makers. Disputes have arisen that certain residential broadband Internet access providers are allowing points of interconnection to become congested and requiring edge and/or transit providers to pay a toll so that their traffic can reach consumers who have requested the content. Allowing broadband internet access providers to use their terminating access monopolies to charge "access fees"—either directly or indirectly—to edge and/or transit companies responding to requests from the Internet access providers' customers is in stark contrast to the policy that's been accepted by policy makers that each provider bears their own costs to interconnect (also known as bill and keep). Internet service subscribers pay their providers substantial fees for the speeds necessary to meet their needs. The Commission has recognized that having end users pay for the network and service to which they subscribe is consistent with the principles of cost causation, meaning that they party who causes the cost should have to pay for it.

## Questions for Stakeholder Comment

### **1. In light of the changes in technology and the voice traffic market, what role should Congress and the FCC play in the oversight of interconnection? Is there a role for states?**

*For “consumers to have a choice of service providers, competitive carriers need to be able to interconnect their networks with incumbent providers. Basic interconnection regulations, which ensure that a consumer is able to make and receive calls to virtually anyone else with a telephone, regardless of service provider, network configuration or location, have been a central tenet of telecommunications regulatory policy for over a century. For competition to thrive, the principle of interconnection—in which customers of one service provider can communicate with customers of another—needs to be maintained.”<sup>22</sup> The interconnection provisions of the Act have worked well for the past two decades--when applied. Where the interconnections provisions have not been enforced (such as large ILEC refusal to interconnect in IP), then consumers lose.*

*Under the Act, interconnection agreements start with commercial negotiation between the parties. States agencies’ role as arbitrator under the Act only comes into play should negotiations fail. Both parties have the incentive to avoid arbitration if possible due to the time and expense of arbitration. The agreements reached (whether by voluntary negotiations or arbitration) are filed with the state for approval (and consistency with the public interest), and other parties can opt into the agreements, providing efficiencies for all parties.*

*It is crucial that the FCC and the state commissions continue to maintain and fulfill their role under the Act with regard to interconnection agreements for voice services so that consumers are able to reap the benefits of the transition of the nation’s networks to IP technology and ensure a competitive market is sustained and promoted.*

*As discussed above, seldom has there been such broad support in the industry across service providers as there has been – such as by cable providers, rural carriers, wireless carriers and traditional competitive LECs – on the need for application of the interconnection provisions of the Act to IP interconnection for managed voice services. It is well documented that the noncompliance with the rules by the major incumbent LECs has greatly hindered the technology transition. As the FCC concluded, 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 companies and competitive local exchange carriers (CLECs).” As a result, the IP transition in the U.S. has been stymied by large ILECs, and the consumer benefits of interconnected VoIP service, such as the availability of enhanced (HD) voice services, have been delayed.*

*The principal role for Congress at this time should be oversight, rather than modifying the current interconnection requirements. As COMPTTEL discussed in response to the first and third white papers, changes in technology do not, and should not, equate to a change in the basic rules that ensure markets are competitive and consumers continue to enjoy innovative and competitively priced services. As the FCC has confirmed, the interconnection provisions of the Act are technologically neutral. The interconnection obligations are relatively modest solutions to problems that continue in the market.*

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<sup>22</sup> FCC, Connecting America: The National Broadband Plan, at 49, rel. Mar. 16, 2010 (“National Broadband Plan”), available at: <http://www.fcc.gov/national-broadband-plan>.

*There is no reason to inject additional uncertainty, and promote additional concentration, by lessening these obligations. To the contrary, the states have only recently begun to perform their statutory duties with regard to IP interconnection for voice services, such as through arbitration invoked by the negotiating parties (Michigan), and addressing the public filing of interconnection agreements (Massachusetts). While some may claim that there will be “a patchwork of 50 inconsistent state decisions,” the vast majority of states will likely never have need to arbitrate. Once a few agreements are reached and filed, they will likely serve as the model for all others. Moreover, it is possible that the FCC could rule on its outstanding rulemaking on IP interconnection. The FCC already has found that providers have a good faith duty to negotiate for IP interconnection and affirmation from the Commission on the applicability of the interconnection provisions in the Telecom Act has been sought and has gained wide support from industry, as mentioned above. These processes provide an opportunity for Congress to gain additional information about these issues.*

**2. Voice is rapidly becoming an application that transits a variety of network data platforms. How should intermodal competition factor into interconnection mandates? Does voice still require a separate interconnection regime?**

*Voice is not just another application provided over any sort of data network. Voice services are real-time interactive services that demand the performance attributes of managed networks if they are to provide the subscriber with any measure of consistency, reliance or security. Thus, the vast majority of voice services transit and interconnect through a managed network. (See the attached diagram.) This distinction is appropriate, as where data services are bursty, voice is constant. Where data services can handle latency and delay, voice is unable to. And finally, where data service is asymmetric, voice service is symmetric. The fact is that voice service is a real time information flow that has particular performance and security needs requiring a managed network.*

*In addition, voice service continues to play the leading communications role in our society and requires public policy attention. This is true for both residential and business consumers. While consumers have embraced email and text as a form of communication, most consumers continue to rely on voice service as the principal means of their most important communications.*

*Accordingly, the interconnection regime should specifically ensure that voice calls are connected. As the FCC found, “[i]nterconnection among communications networks is critical given the role of network effects. Historically, interconnection among voice communications networks has enabled competition and the associated consumer benefits that brings through innovation and reduced prices.”<sup>23</sup> Moreover, the FCC also has stated that “[w]ithout interconnection for voice service, a broadband provider, which may partner with a competitive telecommunications carrier to offer a voice-video-Internet bundle, is unable to capture voice revenues that may be necessary to make broadband entry economically viable.”<sup>24</sup> Finally, consumers do not distinguish between traditional TDM voice calls and VoIP calls, and whether a voice call is over wireless or wireline network, consumers expect that they will be able to call any other voice consumer and it will be connected. This is true whether a consumer is calling 911 to seek*

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<sup>23</sup> ICC/USF Transformation Order and FNPRM at ¶ 1009.

<sup>24</sup> National Broadband Plan at 49.

*emergency assistance from public safety officials, wants to order a pizza for dinner, or a business consumer that is negotiating a billion dollar transaction.*

**3. How does the evolution of emergency communications beyond the use of traditional voice service impact interconnection mandates?**

*The IP technology used for Next Generation 911 services is and will be designed to enable the public to send emergency communications to Public Safety Answering Points (“PSAPs”) via a variety of different media in addition to traditional voice service, including text, photographs, videos, and data. Having real-time access to such multimedia transmitted from the scene of an accident, crime or natural disaster will enhance the ability of PSAPs and first responders to assess and respond to emergencies. The ability of service providers to interconnect on an IP-to-IP basis is a precondition to the delivery of their subscribers’ multimedia traffic to PSAPs and to promote the ubiquitous availability of advanced emergency services.*

**4. Ensuring rural call completion has always been a challenge because of the traditionally high access charges for terminating calls to high-cost networks. Does IP interconnection alleviate or exacerbate existing rural call completion challenges?**

*Pursuant to its 2011 USF/ICC Transformation Order, the FCC has required all voice providers, including those operating in high-cost areas, to gradually reduce their terminating access charges over a period of years to \$0.00 (bill and keep). The FCC determined that high terminating access charges were the main, although not the only, reason that certain carriers do not or have not completed calls to rural areas. That opportunity for arbitrage is diminishing and will eventually disappear completely as terminating access rates approach, and eventually reach, zero. In its Further Notice of Proposed Rulemaking, the FCC is examining whether high transport rate elements may also serve as an incentive to delay IP-to-IP interconnection.*

**5. Should we analyze interconnection policy differently for best-efforts services and managed services where quality-of-service is a desired feature? If so, what should be the differences in policy between these regimes, and how should communications services be categorized?**

*As depicted by the attached diagram, interconnection for best-efforts Internet traffic is separate from traffic being exchanged with a managed service. Even best efforts OTT VoIP service has to go through a managed POI if the call is to a subscriber of managed VoIP services, in order to ensure the quality of service and security provided to the subscriber of the managed service. Given recent expressed concerns in the market, the FCC should investigate this matter further. But, regardless of the outcome of that debate, it is clear that the points of interconnection for managed services fall under the existing statutory interconnection provisions and should continue to do so as discussed above.*

**6. Much of the committee’s focus in the #CommActUpdate process has been on technology-neutral solutions. Is a technology-neutral solution to interconnection appropriate and effective to ensure the delivery and exchange of traffic?**

*Yes. The principle of technological neutrality should remain at the heart of any legislative examination of the interconnection provision. Interconnection is required of all voice providers whether they are wireline, wireless, or satellite. Importantly, the FCC has found that when similar network functionalities are regulated differently, based on the technology used, it undermines longstanding competition policy objectives.<sup>25</sup>*

*But technology neutrality does not mean that certain industry members should not be treated differently. As discussed in our introduction and further discussed in the answer immediately below, certain ILECs continue to have a dominant position in the voice market. Their size and market power make it necessary for smaller voice providers to interconnect with them. If that market power is not adequately addressed, then smaller providers may be put at a significant disadvantage in the marketplace. For example, as discussed, the FCC has now determined that terminating access charges for voice providers should go to bill and keep over a certain period of time. If IP interconnection is only available via commercial negotiations and not pursuant to the Act's provisions, large ILECs will be able to demand access charges from smaller providers and refuse to pay them in turn. As such, large ILECs will be able to gain an even greater financial advantage over smaller providers, increasing their costs and impacting their capability to provide an alternative to consumers.<sup>26</sup>*

**7. Wireless and Internet providers have long voluntarily interconnected without regulatory intervention. Is this regime adequate to ensure consumer benefit in an all-IP world?**

*No. To begin, the premise is factually inaccurate with respect to the wireless marketplace. As the FCC confirmed in a series of Orders, interconnection provisions of the Act apply to interconnection between local exchange carriers and CMRS (mobile wireless) providers. In fact, the significant inroads that mobile wireless providers have made in the marketplace for offering mobile voice services is a direct result of wireless companies being granted the right to request interconnection with wireline companies under the Act. Moreover, because Section 251(a) of the Act applies to all telecommunication carriers, the FCC is able to address disputes between various types of carriers, including to the benefit of the incumbent LEC. For example, wireless carriers indirect interconnection with the smaller incumbent LECs through the larger incumbent LECs led to numerous disputes on compensation. In the FCC's decision in T-Mobile, the Commission clarified that these smaller carriers may request direct interconnection from a CMRS provider and invoke the negotiation and arbitration procedures set forth in section 252 of the Act.<sup>27</sup>*

*For its part, the wireless industry today is far more concentrated with two dominant providers (AT&T and Verizon) than it has been in the past. In addition, the third largest wireless carrier (Sprint) has been forced to seek arbitration in order to obtain IP interconnection for voice services with the incumbent LEC.*

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<sup>25</sup> *National Broadband Plan* at 47.

<sup>26</sup> To add insult to injury, the FCC granted ILECs recovery in its USF/ICC reform for losses in access charge revenues. It did not do the same for competitors. As such, ILECs could reap the benefits of bill and keep for itself, but then refuse to honor bill and keep for competitors.

<sup>27</sup> *Id.* at ¶ 9.

*A fact that cannot be ignored is that competitors have been unsuccessfully seeking interconnection on an IP basis in accordance with the Act from the major incumbent carriers since 2009.<sup>28</sup> To the extent one provider has been willing to enter into agreements, it refuses to do so pursuant to the Act and only wants to limit it to a small percentage of its subscriber base thereby requiring two forms of interconnection, which isn't a workable condition.<sup>29</sup> As a result, as noted in the White Paper, voice interconnection is overwhelming limited to traditional TDM rather than IP, even though IP interconnection can reduce costs by 90%<sup>30</sup> and support innovative new services (such as High Definition voice) that cannot be provided over the existing TDM network.<sup>31</sup>*

*Moreover, in the wireless context, the FCC determined that it was necessary to adopt both voice and data roaming rules to ensure that end users can obtain mobile coverage nationwide and use their mobile devices when they are within the service areas of other carriers.<sup>32</sup> The FCC found overwhelming support for its adoption of rules, from all sectors of the industry, but for AT&T and Verizon Wireless.<sup>33</sup> Despite the existence of the data roaming rules, smaller wireless carrier have brought to the Commission's attention the difficulties they continue to experience in negotiating reasonable data roaming arrangements with Verizon and AT&T.<sup>34</sup>*

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<sup>28</sup> Letter of William H. Weber, Cbeyond, *et al*, to Marlene Dortch, GN Docket No. 09-51, p. 1, filed Sept. 22, 2009. 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, 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.

<sup>29</sup> See Letter from Maggie McCready, Verizon, to Marlene H. Dortch, FCC, GN Docket No. 13-5, p. 3, filed Jan. 10, 2014. Verizon will only exchange in IP if their endpoint is in IP even though is it technically feasible and more economically do establish the interconnection for all traffic. While the majority of competitors' subscriber base is in IP, ILECs have less than 10% of their subscriber base in IP. *Local Competition Report*, p. 5, Figure 4.

<sup>30</sup> See 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*").

<sup>31</sup> The experiment to which the White Paper refers involved OTT VoIP providers and, therefore, has no impact on the ability of the vast majority of VoIP subscriptions being exchanged in IP.

<sup>32</sup> Second Report and Order, *In the Matter of Reexamination of Roaming Obligations of Commercial Mobile Radio Service Providers and Other Providers of Mobile Data Services*, WT Docket 05-265, FCC 11-52, 26 FCC Rcd 5411 at ¶ 4, 13 (2011), *aff'd sub nom.*, *Cellco Partnership v. FCC*, 700 F.3d 534 (D.C. Cir. 2012) ("*Data Roaming Order*"). See also 47 C.F.R. §20.12.

<sup>33</sup> *Id.* at ¶¶ 11-12.

*In the case of Internet interconnection, it grew from a series of government-funded computer networking efforts. The Internet architecture that largely remains in place today was established by the National Science Foundation (NSF) through solicitation and awarding of contracts to provide connection points between commercial networks, and one routing arbiter, to ensure an orderly exchange of traffic across the Internet.<sup>35</sup>*

*For many years the Internet grew without significant concentration as most ISPs were able to share local telephone networks using dial-up access (thereby avoiding the need to duplicate the local loop), and there were multiple backbone networks competing aggressively. Competitive access to broadband Internet access is not available, and competition for robust residential broadband Internet access service has been limited. Indeed, we now have parties, including transit providers and one major video streaming company, raising Internet interconnection and access charge issues. Their concern is that some broadband Internet access providers are exercising their market power (including their terminating monopoly power). It is important for policymakers to investigate these concerns that have been raised. As such, policymakers should exercise great caution when drawing conclusions concerning the historical absence of controversy involving Internet interconnection, as the current market structure, most especially the need for last mile conductivity to compete, and the ongoing complaints is very different than the conditions that produced its historical past.*

*Moreover, unlike the Internet, where traffic generally goes anywhere in the world, most voice traffic is heavily local in nature. The majority of calls address our basic needs—calls to friends and neighbors, places of employment, doctors, hairstylists, and the parents and teachers of our children. The list goes on and on. A change in the technology a carrier uses to carry traffic does not change subscriber calling patterns. Nor does it change the critical need to make sure that local networks are interconnected to ensure that these calls are completed in the most efficient manner. Without governance, however, the carrier with the larger network and more subscribers—i.e. the largest ILECs—could dictate terminating access charges and inefficient distant point of interconnection on its network so that it can extract charges for transport from its competitors, thereby raising their rivals’ costs and harming competition. Instead, large ILECs should be competing on innovation and value.*

**8. Is contract law sufficient to manage interconnection agreements between networks? Is there a less onerous regulatory backstop or regime that could achieve the goals of section 251?**

*No. Contract law does not ensure an agreement will be reached. A primary principle of the interconnection provisions of the Act is to ensure all carriers can enter into agreements for the exchange of traffic so that consumers can have a choice in providers and be assured that their calls will be completed, regardless of the provider of the called party. Another objective is nondiscrimination so that disparate interconnection agreements do not give advantage to the one carrier over another. The*

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<sup>34</sup> Memorandum Opinion and Order *In the Matter of Application of Cricket License Company, LLC, et al., Leap Wireless International, Inc. and AT&T, Inc. for Consent to Transfer Control of Authorizations*, WT Docket No. 13-193, DA 14-349, ¶104 (rel. Mar. 13, 2014); Petition for Expedited Declaratory Ruling of T-Mobile USA, Inc. filed May 27, 2014 in WT Docket No. 05-265, at 6-9.

<sup>35</sup> See National Science Foundation, “A Brief History of NSF and the Internet” (2003), available at: [http://www.nsf.gov/od/lpa/news/03/fnsnf\\_internet.htm](http://www.nsf.gov/od/lpa/news/03/fnsnf_internet.htm)

*interconnection provisions of the Act accomplish this by providing arbitrations when negotiations fail, and the filing and opt-in requirement to ensure non-discrimination and that public interest is served. Section 251(c)(2) provides the pro-competitive criteria against which interconnection agreements are evaluated, such as technical feasibility and just and reasonable and nondiscriminatory rates, terms and conditions. This criterion is the basis for arbitrations and dispute resolutions. Contract law, in and of itself, has no comparable pro-competitive criteria.*

*The interconnection provisions of the Act are not unduly burdensome to any party and actually save resources. Indeed, the process begins with commercial negotiations. Once carriers reach an interconnection agreement, they are merely required to publicly file the contract and allow others to opt-in where those third parties are willing to accept the same terms and conditions. This saves the industry time and expense of negotiating multiple (there are hundreds of carriers) interconnection agreements. It also provides a market check on discrimination. The vast majority of interconnection agreements are reached through the opt-in opportunity, not arbitration.*

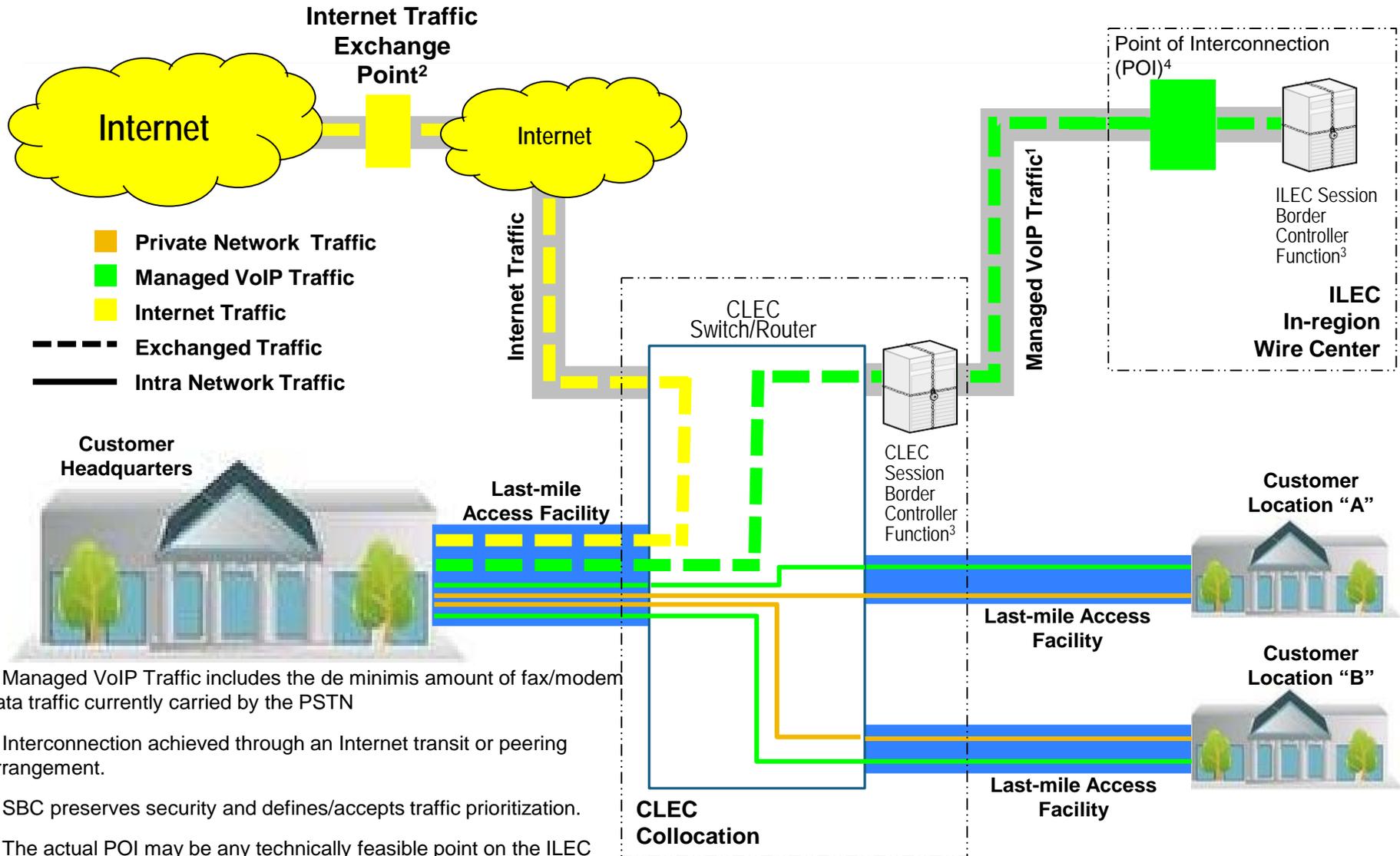
*As final confirmation that the interconnection requirements of Section 251 are not unreasonable, it is important to note that applying these provisions to IP interconnection is supported by the organizations representing the nation's smallest incumbent local telephone companies, even though the provisions would apply to these companies. If the provisions were as onerous as some make out, then the smallest incumbent local exchange carriers would confront the greatest difficulty complying with them. Consequently, their support for IP interconnection falling under the statute is compelling evidence that the administrative burden is reasonable, particularly in comparison to the absolutely vital protections that it provides.*

Thank you for the opportunity to comment.

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COMPTEL

Attachment

# User IP Traffic Flows



<sup>1</sup> Managed VoIP Traffic includes the de minimis amount of fax/modem data traffic currently carried by the PSTN

<sup>2</sup> Interconnection achieved through an Internet transit or peering arrangement.

<sup>3</sup> SBC preserves security and defines/accepts traffic prioritization.

<sup>4</sup> The actual POI may be any technically feasible point on the ILEC network such as the interface port of a router, L-2 switch, ROADM, etc.