

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

In the Matter of )  
 )  
AT&T Petition to Launch a Proceeding )  
Concerning the TDM-to-IP Transition )  
 ) GN Docket No. 12-353  
Petition of NTCA for Rulemaking to )  
Promote and Sustain the Ongoing )  
TDM-to-IP Evolution )

**COMMENTS OF COMPTTEL**

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COMPTTEL respectfully submits these comments, pursuant to the Federal Communications Commission’s (“Commission”) Public Notice released on December 14, 2012 (DA 12-1999),<sup>1</sup> seeking comment on the petition of AT&T which asks the Commission to conduct “trial runs” of the transition to next-generation services,<sup>2</sup> and the petition of the National Telecommunications Cooperative Association (“NTCA”) for a rulemaking “to examine the means of promoting and sustaining the ongoing evolution of the Public Switched Telephone Network from a Time-Division Multiplexing (“TDM”)-based platform to an Internet Protocol (“IP”)-based infrastructure.”<sup>3</sup> The issues raised by these petitions are also raised in a variety of

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<sup>1</sup> These Comments reflect the position of a majority of COMPTTEL members. Individual members may file company-specific comments advocating positions on issues that differ in some particular respects from those stated herein.

<sup>2</sup> AT&T Petition to Launch a Proceeding Concerning the TDM-to-IP Transition, GN Docket No. 12-353, filed Nov. 7, 2012 (“AT&T Petition”).

<sup>3</sup> Petition of the National Telecommunications Cooperative Association for a Rulemaking to Promote and Sustain the Ongoing TDM-to-IP Evolution, GN Docket No. 12-253, filed Nov. 19, 2012 (“NTCA Petition”).

other proceedings in which COMPTTEL is active.<sup>4</sup> As such, our relatively brief comments here should not be read in isolation and we hereby incorporate our prior pleadings filed in those proceedings.<sup>5</sup>

### **Summary and Introduction**

COMPTTEL is looking forward to working with the Commission as it actively oversees the details of the transition in technology, including any trials related to the transition, and we are hopeful that the task force will facilitate the industry moving forward to a packet-based PSTN. There is no question that the future will be defined by IP technology. The open question facing the Commission is how best to structure this transition to achieve a future where consumers and small businesses continue to enjoy competitive choice and rapid innovation. As we explain below, such an outcome would not result through a transition designed by AT&T.

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<sup>4</sup> *In the Matter of Petition of USTelecom From Forbearance Under 47 USC §160(c) From Enforcement of Certain Legacy Telecommunications Regulations*, WC Docket No. 12-61, FCC Public Notice DA 12-352 (rel. Mar. 8, 2012); Further Notice of Proposed Rulemaking, *Connect American Fund, et al*, FCC 11-161, WC Docket Nos. 10-90, 07-135, 05-337, 03-100, CC Docket Nos. 01-92, 96-45, GN Docket No. 09-51 and WT Docket No. 10-208 (2011); *In the Matter of Petitions for Rulemaking and Clarification Regarding the Commission's Rules Applicable to Retirement of Copper Loops and Copper Subloops*, RM-11358, FCC Public Notice, DA07-209 (rel. Jan. 30, 2007); GN Docket Nos. 09-47, 09-51, 09-137; *Legal and Statutory Framework for Next Generation 9-1-1 Services Pursuant to the Next Generation 9-1-1 Advancement Act of 2012*, FCC Public Notice DA 12-1831, PS Docket No. 10-255, PS Docket No. 11-153, PS Docket No. 12-333 (rel. Nov. 13, 2012).

<sup>5</sup> Indeed, COMPTTEL has been actively explaining the importance of the PSTN's transition to IP technology since 2008, working closely with NARUC to adopt a resolution that recognized the importance of establishing new interconnection arrangements for PSTN services using IP technology. See NARUC Resolution Regarding the Interconnection of New Voice Telecommunication Services Networks, adopted by NARUC Board of Directors, July 23, 2008, and "NARUC Telecom Committee Adopts 'Interconnection Rights' Resolution," *Telecommunications Reports*, July 22, 2008. Moreover, COMPTTEL first advised the Commission on this issue in 2009. See Letter from William H. Weber, *Cbeyond, et. al.* to Marlene H. Dortch, Federal Communications Commission, GN Docket No. 09-51, filed September 22, 2009. AT&T's filing is only a small – and decidedly late – step in this much larger discussion.

In this regard, the NTCA filing presents a more sound footing to guide the Commission. As NTCA explains, the “fundamental need of all Americans for affordable access to high-quality communications is independent of the technology used within networks that connect them. The challenge facing industry and policy makers concerns the development of a proper path by which to promote, and more importantly, sustain the already-ongoing IP evolution in a manner consistent with the core statutory objectives of protecting consumers, promoting competition and ensuring universal service.”<sup>6</sup> If the Commission were to adopt the model for this transition that AT&T proposes in its petition, the Commission would be essentially rejecting competition and the importance of consumers having a choice in service providers. In order to ensure that, while the technology moves forward, the market doesn’t move backward to a time when consumers lacked competitive choice, it is important that two critical rights be preserved for the next generation facilities: (1) interconnection and (2) last mile access. Consequently, achieving these goals must be necessary elements of any trial conducted on the transition.

AT&T states that the “regulatory environment will influence providers’ future investment decisions.”<sup>7</sup> While it is true that the pro-competitive policies and provisions of the Act promote investment and innovation, history has demonstrated that AT&T’s theory that deregulation (even that which harms competition) promotes investment is not accurate. For example, in 2003, the Commission concluded that relieving incumbent LECs from unbundling requirements for their fiber optic and packet-based facilities would promote investment in, and deployment of, next-

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<sup>6</sup> NTCA Petition at i (emphasis added and in the original).

<sup>7</sup> AT&T Petition at 4.

generation networks.<sup>8</sup> Even though the ILECs have deployed fiber, according to the Commission 2011 Local Competition Report, eight years later, 95% of the ILEC end user customers were still being served via TDM.<sup>9</sup> In contrast, competitors serve the *majority* of their customers via VoIP,<sup>10</sup> and there have been substantial technological advancements in the copper facilities with which competitors were left.<sup>11</sup> Competition spurs investment. Competition spurs innovation. And, competition is the *only* thing that gives consumers a choice.

As COMPTTEL has previously stated, the most important step the Commission can take to promote the transition to an all-IP PSTN is to confirm that SIP interconnection is subject to Sections 251 and 252 of the Act.<sup>12</sup> This confirmation alone would give competitors a framework to negotiate fair terms for interconnection with ILECs, thereby accelerating the transition to an all-IP network. Interconnect agreements (“ICA”) were a foundational stepping stone for competition from the beginning, and a change in technology does not change the need

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<sup>8</sup> *In the Matter of Review of Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers*, CC Docket No. 01-338 *et al*, Report and Order and Order on Remand and Further Notice of Proposed Rulemaking, FCC 03-36, 18 FCC Rcd 16978, ¶¶ 7 and 272 (2003)(“Triennial Review Order”).

<sup>9</sup> Local Telephone Competition, Status as of December 31, 2011, Industry Analysis and Technology Division, Wireline Competition Bureau, January 2013, Tables 4 and 5.

<sup>10</sup> *Id.* As of December 31, 2011, nearly 60% of the CLEC end-user lines are served by VoIP, as contrasted with only 5% of ILEC lines.

<sup>11</sup> Letter of Stephen L. Goodman, Counsel for ADTRAN, Inc. to Marlene Dortch, FCC, GN Docket Nos. 09-47, 09-51, 09-137, and RM-11358, filed Oct.12, 2012 [“ADTRAN continues to invest and develop innovative Business Ethernet solutions to enable the ubiquitous deployment of high-speed Ethernet services to businesses over copper pairs...”]

<sup>12</sup> We use the term “SIP interconnection,” within these comments, to refer to the exchange of voice traffic between managed network arrangements intended to preserve voice quality comparable to the existing PSTN, and to differentiate such interconnection from the “best efforts” arrangements that characterize the Internet. Examples of managed architectures include AT&T’s UVerse, FiOS, the networks of cable providers and many of COMPTTEL member companies.

for ICAs. The other critical step the Commission needs to take, as part of the transition, is to update its rules to ensure competitors last mile access to reach customers. AT&T's petition makes no mention of testing SIP interconnection, or how competitors will obtain last mile access. (Indeed, it is not at all clear what AT&T is proposing be tested.) Rather, the proposal seems to be a mechanism to allow AT&T to use the excuse of its network update to avoid compliance with its obligations to consumers and competitors.

Consumer and competitive protections should be paramount in any test of the transition, as well as the transition itself. In particular, as discussed below, the test should include SIP interconnection and the development of an interconnection agreement ("ICA"), compliant with section 251/252, that will be publicly filed and available for opt-in by other carriers to curb further disputes on the matter. Moreover, COMPTTEL recommends that any trial include the availability of a wholesale Ethernet last-mile offering comparable to that contained in NECA 5,<sup>13</sup> as well as procedures to make copper available to competitors at reasonable terms and conditions so that this valuable national resource can achieve its broadband potential.

### **Standard for Forbearance and Waivers**

AT&T seems to suggest that the Commission can eliminate AT&T's obligations to consumers and competitors merely in response to AT&T's claim that it will increase its incentive to invest. But AT&T has a statutory burden to prove that it meets the prerequisites to obtain forbearance. Section 10(a) of the Act, 47 U.S.C. §160(a), provides that the Commission may not grant forbearance from any provision of the Act or any Commission regulation unless and until it determines that three conditions have been satisfied, *none of which includes removing AT&T's*

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<sup>13</sup> As we explain below, requiring the major ILECs to introduce a Ethernet offering comparable to that offered in NECA 5 would dramatically reduce last-mile access costs while providing a modern, next-generation foundation for competition.

**risk of investment.** The Commission must make affirmative determinations that (1) enforcement of the provision or regulation is not necessary to ensure that the charges, practices, classifications, or regulations by, for, or in connection with that telecommunications carrier or telecommunications service are just and reasonable and are not unjustly or unreasonably discriminatory; (2) enforcement of the provision or regulation is not necessary for the protection of consumers; and (3) forbearance from applying the provision or regulation is consistent with the public interest.<sup>14</sup> In making the public interest determination, Section 10(b) requires the Commission to consider whether forbearance from enforcing the provision or regulation **will promote competitive market conditions and enhance competition** among telecommunications providers.<sup>15</sup> A waiver of Commission rules also requires an analysis of the public interest.<sup>16</sup>

AT&T has made no such case. AT&T does not address how consumer or competitive interests will be protected at all, and in particular provides no mention of interconnection or last mile access – the critical pieces for competition to survive and flourish.<sup>17</sup> It merely makes claims as to why eliminating its obligations to consumers and competitors is in AT&T’s interest.

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<sup>14</sup> 47 U.S.C. 160(a).

<sup>15</sup> 47 U.S.C. 160(b).

<sup>16</sup> See Order, *AT&T Inc. Petition for Waiver of Section 61.42(g) of the Commission’s Rules*, WCB/Pricing File No. 11-06, DA 11-981, ¶4 (Jun. 2, 2011).

<sup>17</sup> Moreover, among other things, AT&T proposes “to offer wireless communications alternatives to customers living in particularly high cost areas,” including its “Mobile Premises Services.” A&T Petition at 9. But the disclaimer AT&T provides for those services states the following: “The Wireless Home Phone device is designed to provide service that is consistent with other AT&T wireless devices, but AT&T does not represent that the Wireless Home Phone service will be equivalent to landline phone service. . . . AT&T recommends that you always have an alternative means of accessing 911 service from your home or business during a power or network outage.” See <http://www.att.com/shop/wireless/devices/att/wireless-home-phone-silver.html#fbid=Mahss6cgT24>



As discussed above, without enforcement of interconnection and last mile access rights, competition will be eliminated, not promoted. While the transition of the PSTN to IP technology is in the public interest, a future where consumers lack competitive choices is not.

### **SIP Interconnection**

As COMPTTEL has repeatedly explained, the most important step the Commission can take to promote the transition to an all-IP PSTN is to confirm that SIP interconnection is subject to Sections 251 and 252 of the Act. As the Commission has stated, it “has set an 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.”<sup>18</sup> Indeed, the Commission found IP interconnection between providers to be *critical*.<sup>19</sup> Therefore, any test of the transition should include SIP interconnection and the development of an interconnection agreement (“ICA”), compliant with Section 251 and 252, which will be filed and available for opt-in by other carriers to curb further disputes on the matter. In the very least, the Commission must ensure that the ILEC has entered into SIP interconnection agreements with each of the impacted competitors, which are compliant with Sections 251(c) and 252, publicly filed and available for opt-in, before being allowed to shut down its TDM network – even for a “test”.

Rather than promote the public interest by *including* in a test the necessary element of a SIP traffic exchange, AT&T goes so far to the contrary as to request that, in the wire centers of the test, the Commission should “preclude carriers (including carrier customers) from demanding

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<sup>18</sup> Report and Order and Further Notice of Proposed Rulemaking, *Connect America Fund et al*, FCC 11-161, WC Docket Nos. 10-90, 07-135, 05-337, 03-109, GN Docket No. 09-51, CC Docket Nos. 01-92, 96045, and WT Docket No. 10-208, at ¶ 1335 (rel. Nov. 18, 2011)(“FNPRM” or “ICC Transformation Order”).

<sup>19</sup> *Id* at ¶ 1010 (emphasis added).

service or interconnection in TDM in [the trial] wire centers... Carriers would also have no right to demand TDM-based interconnection or services, including TDM-based tandem transit services or SS7-based signaling.”<sup>20</sup>

AT&T’s approach is inexplicable and absurd. AT&T provides no discussion on how carriers will interconnect with AT&T in those wire centers, or what arrangements will exist for the necessary transit. AT&T never even mentions SIP interconnection as part of the trial.<sup>21</sup> Without including SIP interconnection, there would be no trial of the PSTN moving to IP technology, the Commission would simply be sanctioning a trial of AT&T’s network change. There is no public interest gain by conducting a trial of AT&T’s internal network operations.

AT&T must heed its own words and “update their business plans [and] upgrade their own facilities to adjust to industry-wide technological changes,” which include changes to allow for interconnection using this new technology.<sup>22</sup> Allowing AT&T to continue to disregard its interconnection obligations would be the death of competition and inconsistent with the statute. As the Commission recently stated “the 1996 Act recognized, without the ability to exchange traffic with the local incumbent carrier, no competitive provider would be able to compete effectively.”<sup>23</sup>

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<sup>20</sup> AT&T Petition at 21.

<sup>21</sup> It is as though AT&T has proposed a trial of air-travel, without addressing at all that airports will be needed.

<sup>22</sup> *Iowa Util. Bd. v. FCC*, 120 F.3d 753, 813, n. 33 (8th Cir. 1997)[ The Eighth Circuit found that, although the ILEC may not be required to alter their networks substantially to provide *superior* quality interconnection, ILECs are required to make modifications to their facilities to the extent necessary to meet the obligations imposed by sections 251(c)(2) and 251(c)(3).]

<sup>23</sup> 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*

An incumbent LEC has a duty to negotiate in good faith the terms and conditions of agreements to fulfill the duties established by sections 251 (b) and (c) of the Act.<sup>24</sup> A requesting carrier also has a duty to negotiate in good faith.<sup>25</sup> The Commission’s rules provide some understanding on what fails to constitute good faith negotiations.<sup>26</sup> A change in technology does not eliminate the good faith negotiation requirement. As the Commission explained, 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.”<sup>27</sup> While the Commission may determine that the Commission should modify some rules to provide guidance on SIP interconnection (as it did in the context of TDM), as the Commission made clear in the *ICC Transformation Order*, negotiations for SIP interconnection should not be at a standstill while awaiting that determination.<sup>28</sup>

Nonetheless, AT&T and the other major ILECs have disregarded the Commission’s dictate to enter into good faith negotiations for SIP interconnection. Indeed, before the Public

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*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”).

<sup>24</sup> 47 U.S.C. § 251(c)(1).

<sup>25</sup> *Id.*

<sup>26</sup> 47. C.F.R. § 51.301(c).

<sup>27</sup> *ICC Transformation Order* at ¶ 1011.

<sup>28</sup> *Id.* COMPTTEL’s preliminary review of the Commission’s existing rules suggest that only minor modifications may be needed, as the basic framework of the rules, like the statute from which they are drawn, are generally technology neutral. While some rules reflect the prevailing TDM architecture that existed when the rules were drafted, these more specific rules are expressed as *minimum* requirements, and would not limit the parties’ opportunity to negotiate SIP-based arrangements.

Utilities Commission of Ohio, AT&T claimed that “nothing in [the *ICC Transformation Order*] explicitly tied the FCC’s ‘expectations’ [of good faith negotiations] to any affirmative statutory obligation...”<sup>29</sup> AT&T fails to even mention this most critical aspect of the transition in its proposed test. At the same time, AT&T argues that it should not have to interconnect on a TDM basis either. AT&T knows that without interconnection, as mandated by the Act, any existing competition dies and potential competition is thwarted.

While competitors are leading the change in technology, many ILECs -- in particular, the largest ILECs -- are deploying IP networks to serve end-users.<sup>30</sup> Moreover, even where the end-user remains a TDM customer, ILECs have deployed extensive IP-based interoffice networks that would enable SIP interconnection (although conversion would be required at the end-office).<sup>31</sup> Consequently, extensive opportunities exist for SIP interconnection today, if only the largest ILECs would be willing. Hence, the most important act the Commission could take to move the industry in the transition to IP is to make it unambiguously clear that the Act’s Section 251 interconnection obligations apply to SIP interconnection. Enforcing the ILEC interconnection obligations with regard to these facilities would reduce costs (by eliminating

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<sup>29</sup> 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).

<sup>30</sup> See NRRI White Paper 2012-05 - The Transition to an All-IP Network: A Primer on the Architectural Components of IP Interconnection, Joseph Gillan and David Malfara ("*NRRI IP White Paper*"), available at [http://www.nrri.org/web/guest/research-papers/-/document\\_library\\_display/3stN/view/0/7101?\\_110\\_INSTANCE\\_3stN\\_redirect=http%3A%2F%2Fwww.nrri.org%2Fweb%2Fguest%2Fresearch-papers%3Fp\\_p\\_id%3D110\\_INSTANCE\\_3stN%26p\\_p\\_lifecycle%3D0%26p\\_p\\_state%3Dnormal%26p\\_p\\_mode%3Dview%26p\\_p\\_col\\_id%3Dcolumn-2%26p\\_p\\_col\\_count%3D1](http://www.nrri.org/web/guest/research-papers/-/document_library_display/3stN/view/0/7101?_110_INSTANCE_3stN_redirect=http%3A%2F%2Fwww.nrri.org%2Fweb%2Fguest%2Fresearch-papers%3Fp_p_id%3D110_INSTANCE_3stN%26p_p_lifecycle%3D0%26p_p_state%3Dnormal%26p_p_mode%3Dview%26p_p_col_id%3Dcolumn-2%26p_p_col_count%3D1), at pps. 5-7.

<sup>31</sup> It has been estimated that 90% of the interLATA interoffice network has already been replaced by IP technology (along with 60% of the intraLATA interoffice network). See *NRRI White Paper* at 7.

media gateways), enable the introduction of new services (such as HD voice), and thus generally improve the profitability of transitioning to an IP architecture. Sooner is clearly better. But, as we state above, at the very least, the Commission must ensure that the ILEC has entered into SIP interconnection agreements, which are compliant with Sections 251(c) and 252 of the Act, including publicly filed and available for opt-in, before it is allowed to shut down its TDM network – even for a “test”.

### **Last Mile Access**

Through its manner of implementing, or forbearing from, the ILEC statutory obligations, the Commission has allowed the ILECs to deny access to packetized facilities.<sup>32</sup> AT&T now argues that it should also not have to “maintain access to the otherwise unused copper infrastructure in the feeder or to provide a non-packetized transmission path between the central office and the customer’s premise.”<sup>33</sup> In other words, AT&T wants to be allowed to deny

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<sup>32</sup> *In the Matter of Review of Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers*, CC Docket No. 01-338 *et al.*, Report and Order and Order on Remand and Further Notice of Proposed Rulemaking, FCC 03-36, 18 FCC Rcd 16978 (2003)(“Triennial Review Order”); *In the Matter of Review of Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers*, CC Docket No. 01-338, Order on Reconsideration, 19 FCC Rcd 20293 (2004); *Petition for Forbearance of the Verizon Telephone Companies Pursuant to 47 U.S.C. §160(c)*; *SBC Communications, Inc.’s Petition for Forbearance Under 47 U.S.C. §160(c)*; *Qwest Communications International Inc Petition for Forbearance under 47 U.S.C. §160(c)*; *BellSouth Telecommunications, Inc. Petition for Forbearance Under 47 U.S.C. §160(c)*, WC Docket No. 01-338, Memorandum Opinion and Order, 19 FCC Rcd 21496 (2004); FCC News Release, *Verizon Telephone Companies Petition for Forbearance From Title II and Computer Inquiry Rules With Respect To Their Broadband Services Is Granted By Operation of Law*, WC Docket No. 04-440 (rel. Mar. 20, 2006); *Petition of AT&T, Inc. for Forbearance under 47 U.S.C. §160(c) from Title II and Computer Inquiry Rules With Respect to Its Broadband Services*, WC Docket No. 06-125, Memorandum Opinion and Order, 22 FCC Rcd 18705 at ¶ 20 (2007)(“AT&T Broadband Forbearance Order”); *Petition for Forbearance of the Verizon Telephone Companies Pursuant to 47 U.S.C. §160(c)*, WC Docket Nos. 1-338 *et al.*, Memorandum Opinion and Order, FCC 04-254 (2004).

<sup>33</sup> AT&T Petition at 19.

competitors any meaningful last mile access altogether. If competitors lose last mile access, either by allowing ILECs to decommission the copper loop or by continuing with rules governing packetized facilities that ignore modern reality, a substantial number of businesses (in particular, small and medium size businesses) are likely to lose their existing broadband service and be left with no choice in service provider.<sup>34</sup> Importantly, these are the very same small and medium businesses that are expected to grow the economy and create jobs.

The Commission recently (and correctly) confirmed the importance to competition of last mile access pursuant to Section 251 of the Act. Even in those markets that the ILECs claimed to be *most* competitive, the Commission found that “reasonably efficient competitors face barriers to entry that are likely to make entry into these markets uneconomic without access to those UNEs.”<sup>35</sup> The change in technology does not alter this fact. The largest investment costs associated with deploying an IP network (as with any network) exist at Layer 1 (the Physical Layer) with the infrastructure and facilities costs, not with higher layers that electronically define and control traffic flows. The large ILECs still have the advantages of incumbency to achieve a cost structure that no entrant could achieve. The core network facilities on which IP technologies depend are the same as with the TDM technologies – such as trenches, poles, rights of way, conduit, fiber, copper loops, spectrum licenses, municipal permitting for disruptions of

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<sup>34</sup> See Letter of Thomas Jones to Marlene Dortch, WC Docket No. 10-90 et al, p. 6, filed Dec. 4, 2012.

<sup>35</sup> See e.g., Memorandum Opinion and Order, *Petition of Qwest Corporation for Forbearance Pursuant to 47 U.S.C. § 160(c) in the Phoenix, Arizona Metropolitan Statistical Area*, WC Docket No. 09-135, FCC 10-113, ¶ 93 (2010)(Qwest UNE Forbearance Order).

streets and pavements, easements, rights of access to buildings, and all the other mundane but necessary inputs for any network.<sup>36</sup>

The preexisting advantages of incumbency also ensure that an incumbent can deploy fiber more inexpensively, and more broadly, than any entrant can hope to achieve. For instance, Verizon's FiOS not only shares the same infrastructure that houses its copper facilities, its copper network sometimes *becomes* the supporting infrastructure (by lashing the fiber directly to the copper cable). As Verizon has explained to the California Commission:

Over the years pole lines and conduit systems have been constructed as a means to support copper cable placements. Placement of FTTP cables have taken advantage of the existing infrastructure, with fiber cables being placed alongside existing copper cables. It is not uncommon for fiber cables to be lashed to copper cables.<sup>37</sup>

Additionally, as the Commission has recognized, "as new entrants, competitive LECs do not enjoy a large guaranteed subscriber base that would provide a predictable source of funding to offset their local loop deployment costs."<sup>38</sup>

The Commission has also found that section 251(c)(3) UNE regulations are necessary to ensure that the ILEC's charges, practices, classifications, or regulations are just and reasonable, and are not unjustly or unreasonably discriminatory.<sup>39</sup> This is not about the traditional narrowband use of copper loops; this concerns the *contemporary* ability of copper to support

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<sup>36</sup> See Comments of Ad Hoc Comments, WC Docket No. 10-90 et al, at 2-3, filed Feb. 24, 2012.

<sup>37</sup> Panel Declaration of Richard L. Fowler, John C. Mannix, Louis D. Minion, and Warren E. Thomas on Behalf of Verizon-California, Before the Public Utilities Commission of California, Rulemaking Regarding Whether to Adopt, Amend, or Repeal Regulations Governing the Retirement by Incumbent Local Exchange Carriers of Copper Loops and Related Facilities Used to Provide Telecommunications Services, 08-01-005 March 14, 2008, at ¶ 29.

<sup>38</sup> *Triennial Review Order* at ¶ 237.

<sup>39</sup> See e.g., *Qwest UNE Forbearance Order* at ¶ 95.

competitive broadband (*i.e.*, Ethernet over Copper or EoC) services. The competitive value of the copper loop on prices is documented by the CEO of a consulting firm that negotiates telecommunications services on behalf of his clients: “EoC product is forcing the cost of fiber connections to come down...I get a quote for fiber in a building and when EoC becomes available I go back and get a new quote letting them know EoC is available. I can get a fiber quote to drop in half. EoC is really causing fiber providers to provide competitive prices.”<sup>40</sup>

Moreover, since the Commission’s copper retirement and unbundling rules were adopted, the American Recovery and Reinvestment Act of 2009 was enacted. This Act called on the Commission to provide “a detailed strategy for achieving affordability of [broadband] service and maximum utilization of broadband infrastructure and service by the public.”<sup>41</sup> The Commission’s existing rules that jeopardize the competitors’ access to last mile copper facilities and the absence of meaningful wholesale access to packetized facilities is inconsistent with this objective. As we show below, each of these infirmities can be easily corrected (and should be made part of any trial).

### *Packetized Facilities*

There is no question that the foundation for competition in the future will reside on broadband Ethernet access in the same way that traditional competition relied upon the DS1 and DS3 access connections.<sup>42</sup> Importantly, just such connections are available on a wholesale basis

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<sup>40</sup> Sean Buckley, “Finding New Gold in Copper,” FierceTelecom, p. 7. September 2012 (emphasis added).

<sup>41</sup> Pub. L. 111-5 Sec. 6001(k)(2)(B).

<sup>42</sup> Nothing in this section of our comments should be interpreted as an indication that the Commission’s reform of the existing special access services of the ILECs should be delayed or abandoned. Just as it took years for unleaded gas to replace leaded fuels in the nation’s



in the territories served by the smaller rural carriers that concur in the NECA 5 access tariff. Specifically, NECA 5 includes an Ethernet Transport Service (“ETS”) that could, if offered broadly by all ILECs – and, most specifically, the larger ILECs that serve the nations’ largest markets – could become the foundation for a modern, competitive environment. The *absence* of any such a service in these large ILEC tariffs demonstrates the flaw in Commission policy that allows the major ILECs to escape their statutory obligations with regard to packetized offerings.

In the attached analysis, COMPTTEL compares the NECA 5 Ethernet Transport Service to the offerings of AT&T, Verizon and CenturyLink. The pricing of the NECA 5 Ethernet service is substantially less than the largest ILEC’s commercially available Ethernet services, not to mention their regulated TDM special access services. The summary table of the attached analysis (for AT&T) is produced below:

AT&T Monthly Cost Comparison (Collocation Hand-off)	Service Type - Monthly Charge Per Access Line							
	NECA 5 Ethernet Transport Service	Switched Ethernet Service	% Above NECA 5 Rates	TDM Approximate Speed Equivalent	Rate Capped Special Access (TDM)	% Above NECA 5 Rates	Pricing Flexibility Rates (TDM)	% Above NECA 5 Rates
2 Mbps	\$ 149	\$ 1,943	1200%	1 x DS1	\$ 190	27%	\$ 196	31%
5 Mbps	\$ 157	\$ 2,064	1217%	3 x DS1	\$ 570	264%	\$ 588	275%
10 Mbps	\$ 165	\$ 2,192	1227%	6 x DS1	\$ 1,140	590%	\$ 1,176	612%
20 Mbps	\$ 188	\$ 2,794	1386%	13 x DS1	\$ 2,470	1213%	\$ 2,548	1255%
50 Mbps	\$ 223	\$ 3,206	1339%	1 x DS3	\$ 2,200	887%	\$ 2,370	963%
100 Mbps	\$ 252	\$ 3,822	1414%	2 x DS3	\$ 4,400	1643%	\$ 4,740	1778%
250 Mbps	\$ 384	\$ 6,230	1522%	6 x DS3	\$ 13,200	3338%	\$ 14,220	3603%
500 Mbps	\$ 548	\$ 8,450	1443%	11 x DS3	\$ 24,200	4320%	\$ 26,070	4661%
750 Mbps	\$ 693	\$ 11,280	1527%	17 x DS3	\$ 37,400	5294%	\$ 40,290	5711%
1000 Mbps	\$ 847	\$ 12,960	1430%	23 x DS3	\$ 50,600	5872%	\$ 54,510	6334%

automobile fleet, DS1 and DS3 offerings will remain economically relevant to competitors and their customers for the foreseeable future. The inflated prices competitors are forced to pay today frustrate competition, burden consumers and act as drag on the economy overall. These prices must be reformed in *parallel* to the Commission’s efforts to introduce next-generation access connections recommended here.

As shown above, NECA 5 provides a modern access connection that is far more robust,<sup>43</sup> and far less expensive, than AT&T's offerings. For example, the monthly charge per unit of the NECA 5 Ethernet service at 50 Mbps is \$223. AT&T's comparable commercially available Ethernet service is \$3,206. Creating a comparable product using TDM ingredients (a DS3) in a price cap area is \$2,200, while in an area where the Commission's failed pricing flexibility rules apply, the price would be \$2,370.<sup>44</sup>

The conclusion is unmistakable: a pro-competitive modern last mile access policy would dramatically lower costs, increase service offerings and provide immense benefits to small and medium business customers. The Commission must amend its rules/Orders to bring the nation's largest ILECs into the 21<sup>st</sup> century access market. They have the facilities, and their costs should be lower than the small, rural, ILECs that concur in NECA 5. It is a national embarrassment that a comparable access product is not available from AT&T, Verizon and CenturyLink.

#### Copper Facilities

As we have explained in previous filings, copper loops are not obsolete, but are a basic transmission platform that can, with electronic modification, become broadband facilities. Copper can be used to support *either* TDM or packet-based services because, as a transmission medium, it is format agnostic. Technological advancements have transformed copper into the nation's only ubiquitous broadband infrastructure (if not in practice, certainly in potential). Stable access policies will help translate that potential into more actual service configurations that benefit consumers and the economy. COMPTTEL members have been able to offer small and

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<sup>43</sup> See ftn. 9 of Attachment A for a discussion of the additional features/options that establish ETS as a better wholesale option to the services offered by the RBOCs.

<sup>44</sup> The specific tariff references and analyses for CenturyLink and Verizon are provided in Attachment A.

medium size businesses (that might otherwise be left with more expensive DS1s) Ethernet over Copper (“EoC”) offerings that grow with their businesses. As the U.S. Small Business Administration explained, “[l]egacy copper networks are a vital piece of our national infrastructure, and consumers overwhelmingly rely on those last-mile copper networks to receive high-speed broadband services.”<sup>45</sup> Overture, a developer and manufacturer of Carrier Ethernet products for ILECs and CLECs also recently warned “a premature retirement of unbundled copper loops would have a devastating impact on the availability of advanced IP services for a large portion of the U.S. population.”<sup>46</sup>

Moreover, while AT&T continually states that it faces a significant burden if required to maintain copper loops, it has never demonstrated that burden. According to ETC Group, LLC, which specializes in advising telecommunications service providers on management, operation and deployment of emerging technologies, “maintenance” activities for copper outside plant facilities are typically associated with a specific event.<sup>47</sup> For example, the loss of air pressure in an air-filled cable would result in a Gas Pressure Alarm, and would be a common fault indicator that would initiate a “maintenance activity.” (Loss of pressure would allow any environmental water to enter the cable and cause immediate damage to pulp insulated conductors; damage to cable using plastic insulated conductors would occur gradually, over time.)<sup>48</sup> In other words, no

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<sup>45</sup> Comments of the Office of Advocacy, U.S. Small Business Administration, Promoting Interoperability in the 700 MHz Commercial Spectrum, WT Docket No. 12-69, filed May 22, 2012.

<sup>46</sup> Letter of Jeff Reedy, Co-founder and Chief Strategy Officer, Overture, to Marlene Dortch, Secretary, FCC, GN Docket Nos. 09-47, 09-51, 09-137, and RM-11358, p. 5, dated Dec. 7, 2012.

<sup>47</sup> Declaration of David J. Malfara and William E. Steenson, pp. 6-7, Attachment B to Letter of Karen Reidy to Marlene Dortch, GN Docket Nos. 09-47, 09-51, 09-137, RM-11358, filed Dec. 7, 2009.

outside-plant-specific maintenance activities are required to keep idle copper facilities in a condition to return to service, just repair associated with a particular event. These repair activities could take place when the event occurs or upon request to bring the loop back in-service.<sup>49</sup>

### **Section 214 Discontinuance Requirements**

Section 214(a) of the Act requires that the ILEC certify that neither the present nor the future public convenience and necessity will be adversely affected by any discontinuance, impairment or reduction in service.<sup>50</sup> Requiring prior Commission approval for discontinuance of service is a means to protect against the unreasonable termination of service to customers.<sup>51</sup> The Commission will normally authorize a proposed discontinuance, reduction or impairment of service unless it is shown that customers would not be able to receive service or a reasonable substitute from another carrier, or that the public convenience or necessity is otherwise adversely affected.<sup>52</sup>

Section 214 of the Act and Sections 63.62(b) and 63.71 of the Commission's rules require Commission approval for the severance by a carrier of a physical connection with another carrier and the suspension of the exchange of traffic with another carrier. An ILEC's severance of a physical connection or the termination of traffic exchange with another carrier

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<sup>48</sup> *Id.*

<sup>49</sup> *Id.*

<sup>50</sup> 47 U.S.C. 214(a).

<sup>51</sup> *In the Matter of the 2000 Biennial Regulatory Review*, IB Docket No. 00-231, Notice of Proposed Rulemaking, FCC 00-407 at ¶ 28 (rel. Nov. 30, 2000).

<sup>52</sup> *See* Section 63.71(a) of the Commission's Rules.

would cause irreparable harm to the other carrier and its customers because those customers would not be able to make calls to or receive calls from the ILEC's customers.<sup>53</sup>

AT&T states that no Section 214 approval is necessary when it replaces TDM facilities with IP-based alternatives. As COMPTTEL stated in response to the USTelecom Petition, two carriers that mutually agree to exchange traffic on an IP-to-IP basis or to substitute IP interconnections for legacy network interconnections would not need to get the Commission's prior approval pursuant to Section 214. AT&T, however, does not address SIP interconnection. Indeed, the three largest ILECs have resisted SIP interconnection with competitors. It would be violation of Section 214 to allow AT&T to discontinue TDM interconnection until AT&T has entered into SIP interconnection agreements with the impacted carriers. Until AT&T has entered into an agreement for SIP interconnection with a carrier, the discontinuance of TDM interconnection to that carrier is subject to Section 214 and applicable Commission rules.

Ironically, AT&T argues that when it replaces the voice service it is providing over TDM facilities, which unquestionably is a telecommunications service, with voice service provided over IP facilities, the result is an information service. Yet, in the context of Section 214, AT&T argues that it is not discontinuing a service to end-users. It is irreconcilable to say that it is no longer providing a telecommunications service, but at the same time not discontinuing a telecommunications service. Whether Section 214 applies for other reasons, as COMPTTEL has previously addressed, when AT&T transitions the technology over which it provides its managed voice services, it will still be providing a telecommunication service and Section 251(c) applies.

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<sup>53</sup> See e.g., *In the Matter of Connect America Fund.*, WC Docket Nos. 10-90, *et al.*, Report and Order and Further Notice of Proposed Rulemaking, FCC -161 at ¶1336 (re. Nov. 18, 2011) ("*CAF Order*") (interconnection among communications networks is critical given the role of network effects – i.e., telephone service to an individual subscriber becomes more valuable to that subscriber as the number of other people he or she can reach using the telephone increases).

### **Network Change Notification**

AT&T states that it supports USTelecom's related request for forbearance from the Commission's short-term notice-of-network-change rules to the extent they require the Commission to issue a Public Notice regarding network changes before the clock for objections may start running. AT&T's objection to the rule is based on the *possibility* of delays in the issuance of a Public Notice from the Commission. As COMPTTEL stated in its opposition to the USTelecom petition, bureaucratic delay in issuing Public Notices does not provide a statutory basis for a waiver or forbearance from enforcement of Sections 51.329 and 51.333 of the Commission's Rules.<sup>54</sup>

Under the Commission's rules, an ILEC must provide public notice regarding any network change that will affect (1) a competing provider's performance or ability to provide service, (2) the ILEC's interoperability with other service providers, (3) the manner CPE is attached to interstate network, and (4) retirement of copper facilities on which competing providers rely to provide service.<sup>55</sup> In addition to ensuring awareness of these critical changes to those impacted, the rules prohibit the ILEC from disclosing information about the planned network changes to separate affiliates or unaffiliated entities until such public notice is provided, thereby ensuring nondiscrimination in the handling of notifications.<sup>56</sup> In the case of a short term notification – when the ILEC wants to make the change with less than 6 months' notice - the Commission requires it to send notification to affected parties and provide certification of such to

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<sup>54</sup> COMPTTEL Opposition at 14.

<sup>55</sup> 47 CFR § 51.325(a).

<sup>56</sup> 47 CFR §51.325(c).

the Commission. The Commission then issues a Public Notice that provides parties 10 days to object to the shortened period for notification.<sup>57</sup>

AT&T must show that forbearance from enforcement of the network change notification rules will protect consumers, promote competitive market conditions or enhance competition among telecommunications providers and otherwise service the public interest. As the rules serve valuable public interests in ensuring that competitors' customers do not lose service, and that competitors and affiliates are treated equally during the transition, a waiver or forbearance from the rules does not serve, and indeed counters, the public interest. The Commission needs to ensure a fair process for network change notifications, both in terms of providing carriers that interconnect with the ILEC sufficient time to adjust to the changes and making sure that carriers are treated in a nondiscriminatory fashion by receiving notification at the same time.

### **Conclusion**

The transition to a new technology should not result in forcing consumers to a particular provider and restricting them to whatever service, at whatever price, that provider offers. Rather, consumers should obtain the benefit of innovation and the assurance of competitive choices and accurate information about their options. The Commission must ensure that the end result of the transition, and an element of any test, be the preservation of two critical competitive statutory rights for the next generation facilities: (1) interconnection and (2) last mile access.

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<sup>57</sup> 47 CFR § 51.333

Respectfully submitted,

/s/

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# An Analysis of Ethernet Access Options under NECA 5

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## Overview

The extensive duplication of local access networks for most competitors is economically infeasible. Although competitors can deploy new facilities to targeted multi-tenant buildings, any widespread competition requires the availability of a reasonably priced access connection from the incumbent. Traditionally, competitors have relied upon standard TDM access circuits (DS1 and DS3) to connect customers to their local networks. As the nation transforms to a universal packet network, however, a modern wholesale Ethernet access (with transport) is necessary for competition to flourish. Although such an offering is most needed in the nation's urban and suburban markets served by the Bell Operating Companies (BOCs), it is the smaller rural ILECs that have introduced just such a service in their collective special access tariff (NECA #5). The purpose of this analysis is to compare this modern Ethernet access option to the far more limited (and overpriced) special access offerings of the BOCs.

## Ethernet Transport Service (ETS)

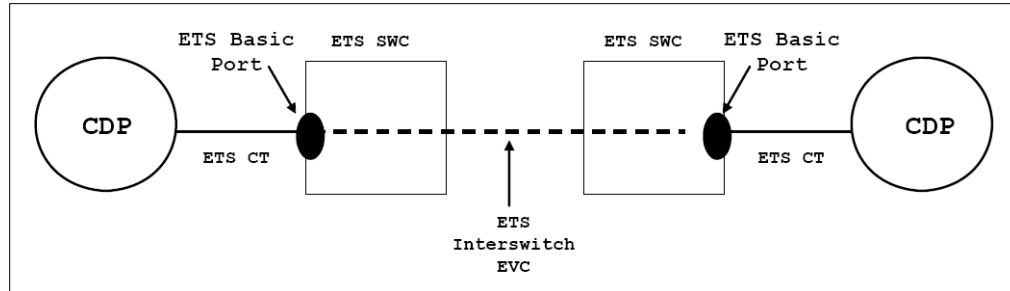
NECA Access Service FCC Tariff #5 provides Ethernet access and transport services (ETS) at monthly, one-year, three-year and volume pricing plans.<sup>1</sup> ETS provides end-to-end transport at speeds ranging from 2 Mbps to 1 Gbps (where available). At speeds above 50 Mbps, a fiber loop is required. ETS is used for broadband transport using variable length Ethernet packets with the ability to interconnect multiple locations using the Telephone Company's ETS network.

Ethernet packets generated by Ethernet-compatible customer premises equipment (CPE) are transmitted using available capacity on shared transmission paths through the Telephone Company's ETS network to a pre-specified destination as shown in Figure 1. ETS can be used, for example, to interconnect a DSL-ASCP<sup>2</sup> in one ETS Serving Wire Center (SWC) to a telecommunications service provider (TSP) point of presence served by a different ETS SWC.

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<sup>1</sup> Section 16.3 of NECA 5.

<sup>2</sup> Digital Subscriber Line - Access Service Connection Point as defined in Section 8.1.1 of NECA 5.



**Figure 1 - ETS Service between Serving Wire Centers (ETS comprises shared transport)**

ETS comprises an ETS Channel Termination (ETS CT on left of diagram), which connects a Customer Designated Premises (CDP – ex. end-user premises) to a basic ETS port at its SWC. The ETS Port is connected to an ETS Ethernet Virtual Connection (EVC), which provides the connectivity and shared transport to a distant SWC (if different than the initial SWC) and ETS Port serving the TSP point of presence. Finally, the distant ETS Port is connected, via the ETS Channel Termination to the second CDP (ex. TSP point of presence).<sup>3</sup>

In its “default” state, the transmission quality of ETS is not guaranteed and is offered to ETS customers at a best effort level.<sup>4</sup> In this default form, ETS cannot provide the foundational elements necessary to deploy a deterministic network such as that necessary to guarantee quality of service (QoS) in a Managed Networks. However, the TSP can order Class of Service (CoS) prioritization for ETS EVCs contained within a NECA carrier’s operating territory, which allows the TSP to prioritize its own traffic and affect the way in which that traffic is supported throughout the NECA carrier’s ETS network.<sup>5</sup> Each CoS is ordered with a bandwidth allocation, the sum of which cannot exceed the bandwidth of the associated EVC.<sup>6</sup>

## Terms & Pricing

ETS pricing is principally determined by the speed requested for both the ETS EVCs and CTs; the distance between the SWCs when one SWC does not serve both CDPs; and, the distance between the SWC and CDP (i.e. over or under 300 feet). The price of the ETS CT is also determined by the “Rate Band” of the ETS SWC, which is meant to accommodate the differences in operating costs (for whatever

<sup>3</sup> The ETS Port can, optionally, be connected to a DSL Access Connection, which aggregates TSP xDSL subscriber lines.

<sup>4</sup> Section 16.3.2 of NECA 5.

<sup>5</sup> Carrier-recognized Classifications are: Real Time, Near Real Time and Other. All values, however, will be passed.

<sup>6</sup> The tariff effectively describes a deterministic service, although it does not provide a specified service level agreement or incorporate a penalty system for failing to achieve performance metrics.

reason) between different NECA carriers. The analysis below focuses on Rate Band 1, since that is the rate band most similar to the suburban and/or urban markets served by the BOCs to which the prices are compared.<sup>7</sup>

The minimum service period for ETS Ports and CTs is twelve months. The minimum service period for all other ETS elements is one month. Length of term percentage-based discounts are available for 36-month and 60-month commitments. Volume discounts are also provided.

The basic rate elements, rates and discount structures for ETS service are identified in Appendix A.

### Comparison of ETS to BOC Special Access Pricing

NECA 5 offers ETS service in many configurations. The configurations applicable to our area of interest (Subscriber Access) however, are fairly straight-forward. Pricing is mostly affected by the configuration of how and where a TSP accepts a hand-off of the service. The analysis below assumes the typical configurations of interconnection to ETS Channel Terminations at a collocation within a SWC.<sup>8</sup> See Figure 2 below, which depicts a subscriber (the CDP on the left) interconnecting to a TSP collocation facility (the CDP on the right) within the same serving wire center.

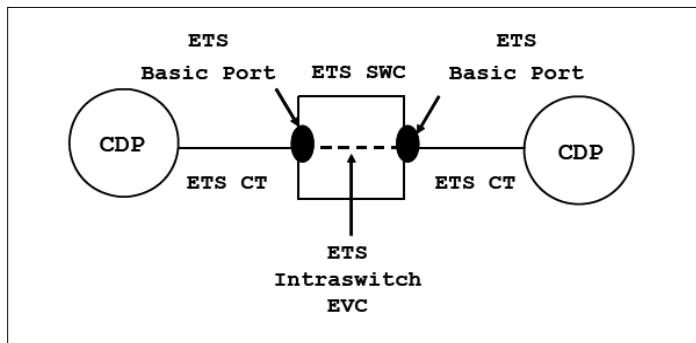


Figure 2 - ETS configured as Ethernet Access Line

Using this Ethernet Subscriber Access Line configuration, we compare the prices of the ETS service offering available under NECA 5 to those of Ethernet and TDM offerings from AT&T, Verizon,

<sup>7</sup> As a practical matter, comparing Rate Band 1 prices to BOC special access services is most favorable to the BOCs, whose suburban and urban markets would likely enjoy lower costs than the rural ILECs that concur in NECA 5.

<sup>8</sup> In this way the analysis focuses on the difference in access network prices between ETS, configured as a Subscriber Ethernet Access Line, and RBOC Special Access without considering additional complexities such as backhaul.

CenturyLink (Qwest) and CenturyLink (Non-Quest), which would produce functionality approximately equal to that of ETS.<sup>9</sup>

Figures 3 – 6 show the monthly charge per unit (i.e. the charge per subscriber access line), by service provider, for each of the Ethernet subscriber access line speeds listed in the left-hand column. Column 2 shows the prices available under NECA 5 for such access lines. Columns 3 – 4 show the prices of any comparable Ethernet offerings of the service provider (to the extent available) and the ratio of those prices to the prices of NECA 5 services. Columns 6 – 9 show the composite cost of TDM services required to create a comparable access line offering of the speed described in column 1, using techniques such as TDM bonding and Link Aggregation Groups (LAGs). Column 5 indicates the actual facilities used to achieve each speed of access line.

AT&T Monthly Cost Comparison (Collocation Hand-off)	Service Type - Monthly Charge Per Access Line							
	NECA 5 Ethernet Transport Service	Switched Ethernet Service	% Above NECA 5 Rates	TDM Approximate Speed Equivalent	Rate Capped Special Access (TDM)	% Above NECA 5 Rates	Pricing Flexibility Rates (TDM)	% Above NECA 5 Rates
2 Mbps	\$ 149	\$ 1,943	1200%	1 x DS1	\$ 190	27%	\$ 196	31%
5 Mbps	\$ 157	\$ 2,064	1217%	3 x DS1	\$ 570	264%	\$ 588	275%
10 Mbps	\$ 165	\$ 2,192	1227%	6 x DS1	\$ 1,140	590%	\$ 1,176	612%
20 Mbps	\$ 188	\$ 2,794	1386%	13 x DS1	\$ 2,470	1213%	\$ 2,548	1255%
50 Mbps	\$ 223	\$ 3,206	1339%	1 x DS3	\$ 2,200	887%	\$ 2,370	963%
100 Mbps	\$ 252	\$ 3,822	1414%	2 x DS3	\$ 4,400	1643%	\$ 4,740	1778%
250 Mbps	\$ 384	\$ 6,230	1522%	6 x DS3	\$ 13,200	3338%	\$ 14,220	3603%
500 Mbps	\$ 548	\$ 8,450	1443%	11 x DS3	\$ 24,200	4320%	\$ 26,070	4661%
750 Mbps	\$ 693	\$ 11,280	1527%	17 x DS3	\$ 37,400	5294%	\$ 40,290	5711%
1000 Mbps	\$ 847	\$ 12,960	1430%	23 x DS3	\$ 50,600	5872%	\$ 54,510	6334%

**Figure 3 - Comparison of ETS to AT&T Ethernet and TDM services<sup>10</sup>**

The comparisons in Figure 3 show that even the Ethernet offerings of AT&T are not price competitive with those of the NECA service providers. The AT&T services exceed the NECA 5 services with price ratios ranging from a low of 1,200% to a high of more than 1,500%. The TDM speed-equivalent services, under rate cap, show an even greater ratio range, topping out at almost 5,900% of the comparable NECA 5 service. The rates in areas where AT&T enjoys price flexibility are the highest rates for comparable service with a range of prices exceeding 6300% of the NECA 5 rates at the highest speed.

<sup>9</sup> This is not to say that the Ethernet/Special Access services of the RBOCs are equal to ETS services. ETS is a more sophisticated wholesale offering, permitting such functionality as traffic prioritization, rate shaping, traffic policing, rate limiting, VLAN tagging, Class of Service-based traffic handling and hand-off to other participating carriers, etc. that raise the offering to that of a true wholesale service. The Ethernet services offered by AT&T, Verizon and CenturyLink do not begin to approach that level of flexible inter-operability and are more representative of a retail, end-user service. (See NECA 5, Section 16.3)

<sup>10</sup> AT&T rates for Switched Ethernet Service can be found in the AT&T Interstate Access Guidebook, Part 5, Section 4. AT&T rate-capped special access prices can be found in AT&T (AIT) Tariff FCC #2, Sections 7.5.9(B)1 and 7.5.9(C)1. AT&T pricing flexibility access rates can be found in AT&T (AIT) Tariff FCC #2, Sections 21.5.2.7.1(A) and 21.5.2.7.1(B).

Verizon Monthly Cost Comparison (Collocation Hand-off)	Service Type - Monthly Charge Per Access Line							
	NECA 5 Ethernet Transport Service	Transparent LAN Service	% Above NECA 5 Rates	TDM Approximate Speed Equivalent	Rate Capped Special Access (TDM)	% Above NECA 5 Rates	Pricing Flexibility Rates (TDM)	% Above NECA 5 Rates
2 Mbps	\$ 149	Available only under private contract at undisclosed rates		1 x DS1	\$ 197	32%	\$ 239	60%
5 Mbps	\$ 157			3 x DS1	\$ 591	277%	\$ 718	358%
10 Mbps	\$ 165			6 x DS1	\$ 1,182	615%	\$ 1,435	768%
20 Mbps	\$ 188			13 x DS1	\$ 2,561	1262%	\$ 3,109	1553%
50 Mbps	\$ 223			1 x DS3	\$ 2,310	936%	\$ 3,207	1339%
100 Mbps	\$ 252			2 x DS3	\$ 4,200	1564%	\$ 6,063	2302%
250 Mbps	\$ 384			6 x DS3	\$ 8,700	2166%	\$ 10,844	2724%
500 Mbps	\$ 548			11 x DS3	\$ 14,025	2461%	\$ 15,391	2711%
750 Mbps	\$ 693			17 x DS3	\$ 20,400	2842%	\$ 24,579	3445%
1000 Mbps	\$ 847			23 x DS3	\$ 25,415	2900%	\$ 29,634	3398%

Figure 4 - Comparison of ETS to Verizon Ethernet and TDM services<sup>11</sup>

The comparisons in Figure 4 first indicate the fact that Verizon does not publish pricing for its Transparent LAN Service so it is not possible to compare those prices to the NECA 5 prices. The TDM speed-equivalent services under rate cap show a similar story to AT&T, with price differences topping out at 2,900% of the comparable NECA 5 service. The rates in areas where Verizon enjoys price flexibility are, again, the highest rates for comparable service with a range of prices nearing 3,400% of the NECA 5 rates at the highest speed.

CenturyLink (Qwest) Monthly Cost Comparison (Collocation Hand-off)	Service Type - Monthly Charge Per Access Line							
	NECA 5 Ethernet Transport Service	Metro Optical Ethernet (MOE)	% Above NECA 5 Rates	TDM Approximate Speed Equivalent	Rate Capped Special Access (TDM)	% Above NECA 5 Rates	Pricing Flexibility Rates (TDM)	% Above NECA 5 Rates
2 Mbps	\$ 149	\$ 1,048	601%	1 x DS1	\$ 109	-27%	\$ 156	4%
5 Mbps	\$ 157	\$ 1,154	636%	3 x DS1	\$ 327	109%	\$ 468	199%
10 Mbps	\$ 165	\$ 1,321	699%	6 x DS1	\$ 654	296%	\$ 936	466%
20 Mbps	\$ 188	\$ 1,510	703%	13 x DS1	\$ 1,416	653%	\$ 2,028	978%
50 Mbps	\$ 223	\$ 2,121	852%	1 x DS3	\$ 1,400	528%	\$ 2,100	842%
100 Mbps	\$ 252	\$ 2,729	981%	2 x DS3	\$ 2,800	1009%	\$ 4,200	1564%
250 Mbps	\$ 384	\$ 5,363	1297%	6 x DS3	\$ 8,400	2088%	\$ 12,600	3181%
500 Mbps	\$ 548	\$ 7,397	1251%	11 x DS3	\$ 15,400	2713%	\$ 23,100	4119%
750 Mbps	\$ 693	\$ 10,448	1407%	17 x DS3	\$ 23,800	3333%	\$ 35,700	5049%
1000 Mbps	\$ 847	\$ 12,481	1373%	23 x DS3	\$ 32,200	3701%	\$ 48,300	5601%

Figure 5 - Comparison of ETS to CenturyLink (Qwest) Ethernet and TDM services<sup>12</sup>

<sup>11</sup> Verizon rates for its Transparent LAN Service are undisclosed. Verizon rate-capped special access prices can be found in Verizon Tariff FCC #1, Sections 7.5.9(A)1. Verizon pricing flexibility access rates can be found in Verizon Tariff FCC #1, Sections 7.5.9(A)1. The lowest cost Price Band (Price Band 4) was used in this analysis.

<sup>12</sup> CenturyLink (Qwest) rates for its Metro Optical Ethernet service can be found in the Qwest Corporation Rates and Services Schedule Interstate No. 1, Section 8.8.4. CenturyLink (Qwest) rate-capped special access prices can be found in Qwest Corporation Tariff F.C.C. No. 1, Section 7.11.4 and 7.12.4. CenturyLink (Qwest) pricing flexibility access rates can be found in Qwest Corporation Tariff F.C.C. No. 1, Section 17.2.11 and 17.2.12. The lowest cost Zone (Zone 1) was used in this analysis.

The comparisons in Figure 5 show that the Ethernet offerings of CenturyLink (Qwest) are not price competitive with those of the NECA service providers. The CenturyLink (Qwest) services exceed the NECA 5 services by ratios ranging from a low of more than 600% to a high of more than 1,400%. The TDM speed-equivalent services, under rate cap, show an even greater range ratio, topping out at more than 3,700% of the comparable NECA 5 service. The rates in areas where CenturyLink (Qwest) enjoys price flexibility are the highest rates for comparable service with a range of prices exceeding ratios of 5,600% compared to the NECA 5 rates at the highest speed.

CenturyLink (Non-Qwest) Monthly Cost Comparison (Collocation Hand-off)	Service Type - Monthly Charge Per Access Line							
	NECA 5 Ethernet Transport Service	Ethernet Virtual Private Line	% Above NECA 5 Rates	TDM Approximate Speed Equivalent	Rate Capped Special Access (TDM)	% Above NECA 5 Rates	Pricing Flexibility Rates (TDM)	% Above NECA 5 Rates
2 Mbps	\$ 149	\$ 807	440%	1 x DS1	\$ 212	42%	\$ 257	72%
5 Mbps	\$ 157	\$ 997	536%	3 x DS1	\$ 636	306%	\$ 771	392%
10 Mbps	\$ 165	\$ 1,013	513%	6 x DS1	\$ 1,272	670%	\$ 1,542	833%
20 Mbps	\$ 188	\$ 1,161	517%	13 x DS1	\$ 2,756	1365%	\$ 3,341	1677%
50 Mbps	\$ 223	\$ 1,745	683%	1 x DS3	\$ 3,350	1403%	\$ 3,404	1427%
100 Mbps	\$ 252	\$ 2,336	825%	2 x DS3	\$ 6,700	2555%	\$ 6,808	2597%
250 Mbps	\$ 384	\$ 3,136	717%	6 x DS3	\$ 20,100	5135%	\$ 20,424	5219%
500 Mbps	\$ 548	\$ 4,468	716%	11 x DS3	\$ 36,850	6630%	\$ 37,444	6738%
750 Mbps	\$ 693	\$ 6,464	832%	17 x DS3	\$ 56,950	8114%	\$ 57,868	8246%
1000 Mbps	\$ 847	\$ 7,290	760%	23 x DS3	\$ 77,050	8994%	\$ 78,292	9141%

**Figure 6 - Comparison of ETS to CenturyLink (Non-Qwest) Ethernet and TDM services<sup>13</sup>**

The comparisons in Figure 6 show that the Ethernet offerings of CenturyLink (Non-Qwest companies) are not price competitive with those of the NECA service providers. The CenturyLink (Non-Qwest) services exceed the NECA 5 services by ratios ranging from a low of 440% to a high of more than 830%. The TDM speed-equivalent services, under rate cap, show an even greater range ratio, topping out at almost 9,000% of the comparable NECA 5 service. The rates in areas where CenturyLink (Non-Qwest) enjoys price flexibility are the highest rates for comparable service with a range of prices exceeding ratios of 9,100% compared to the NECA 5 rates at the highest speed.

<sup>13</sup> CenturyLink (Non-Qwest) rates for its Ethernet Virtual Private Line service can be found in the CenturyLink Operating Companies Tariff F.C.C. #9, Section 7.5.18. CenturyLink (Non-Qwest) rate-capped special access prices can be found in the CenturyLink Operating Companies Tariff F.C.C. #9, Section 7.5.8(A)1 and Section 7.5.8(A)2 (Virginia). CenturyLink (Non-Qwest) pricing flexibility access rates can be found in the CenturyLink Operating Companies Tariff F.C.C. #9, Section 22.5.8(A)1 and Section 22.5.8(A)2. The lowest cost Zone (Zone 1) was used in this analysis.

## **Summary**

The NECA 5 tariff offers very compelling pricing for ETS service when used as a (functionally superior) alternative to RBOC Special Access services and rates. The current offerings from AT&T, Verizon and CenturyLink not only lack competitive pricing but, compared to the ETS offering made available under NECA 5, offer abbreviated functionality, less service flexibility and few options for interconnection supportive of Managed Networks.

## Appendix A

### Ethernet Transport Service

ETS Channel Termination < 300 Feet		
Bi-directional Speed	Non-recurring	Monthly
2 Mbps	\$ 295.00	\$ 43.45
5 Mbps		\$ 53.33
10 Mbps		\$ 61.59
20 Mbps		\$ 67.60
50 Mbps		\$ 81.13
100 Mbps		\$ 90.14
250 Mbps		\$ 128.38
500 Mbps	\$ 442.00	\$ 168.26
750 Mbps		\$ 195.52
1 Gbps		\$ 223.83

ETS Channel Termination > 300 Feet		
Bi-directional Speed	Non-recurring	Monthly
2 Mbps	\$ 295.00	\$ 110.20
5 Mbps		\$ 111.42
10 Mbps		\$ 113.00
20 Mbps		\$ 127.84
50 Mbps		\$ 149.98
100 Mbps		\$ 160.25
250 Mbps		\$ 227.13
500 Mbps	\$ 442.00	\$ 300.47
750 Mbps		\$ 345.63
1 Gbps		\$ 400.62

ETS Basic Port			
Bi-directional Speed	Non-recurring	Monthly	DSL-ASC One-time
2 Mbps	\$ 259.00	\$ 55.30	\$ 150.00
5 Mbps		\$ 61.22	
10 Mbps		\$ 67.60	
20 Mbps		\$ 75.11	
50 Mbps		\$ 82.63	
100 Mbps		\$ 90.14	
250 Mbps		\$ 124.43	
500 Mbps	\$ 388.00	\$ 157.74	\$ 225.00
750 Mbps		\$ 199.48	
1 Gbps		\$ 240.37	

ETS EVC (Intraswitch)		
Bi-directional Speed	Non-recurring	Monthly
2 Mbps	\$ 205.00	\$ -
5 Mbps		\$ -
10 Mbps		\$ -
20 Mbps		\$ -
50 Mbps		\$ -
100 Mbps		\$ -
250 Mbps		\$ -
500 Mbps	\$ 307.00	\$ -
750 Mbps		\$ -
1 Gbps		\$ -

ETS EVC (Interswitch)		
Bi-directional Speed	Non-recurring	Monthly
2 Mbps	\$ 205.00	\$ 23.70
5 Mbps		\$ 32.05
10 Mbps		\$ 60.09
20 Mbps		\$ 120.18
50 Mbps		\$ 168.26
100 Mbps		\$ 268.41
250 Mbps		\$ 553.00
500 Mbps	\$ 307.00	\$ 921.43
750 Mbps		\$ 1,224.51
1 Gbps		\$ 1,602.48

CoS - Monthly Per Mbps (Intraswitch)		
Bi-directional Speed	Near Realtime	Real Time
2 Mbps	\$ 0.24	\$ 0.48
5 Mbps		
10 Mbps		
20 Mbps		
50 Mbps	\$ 0.14	\$ 0.27
100 Mbps		
250 Mbps		
500 Mbps	\$ 0.08	\$ 0.16
750 Mbps		
1 Gbps		

CoS - Monthly Per Mbps (Interswitch)		
Bi-directional Speed	Near Realtime	Real Time
2 Mbps	\$ 0.79	\$ 1.58
5 Mbps		
10 Mbps		
20 Mbps		
50 Mbps	\$ 0.49	\$ 0.99
100 Mbps		
250 Mbps		
500 Mbps	\$ 0.30	\$ 0.59
750 Mbps		
1 Gbps		

Term and Volume Discounts	
Commitment	Discount
36-Month Term	10%
60-Month Term	20%
More than 4 ETS Ports in service	10%