Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of

AT&T Petition to Launch a Proceeding
Concerning the TDM-to-IP Transition;
Petition of the National Telecommunications Cooperative Association for a Rulemaking to Promote and Sustain the Ongoing TDM-to-IP Evolution
Technology Transitions Policy Task Force

Comments of the National Cable & Telecommunications Association

Steven F. Morris
Jennifer K. McKee
National Cable & Telecommunications Association
25 Massachusetts Avenue, NW – Suite 100
Washington, DC  20001-1431

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COMMENTS OF THE NATIONAL CABLE & TELECOMMUNICATIONS ASSOCIATION

The National Cable & Telecommunications Association (NCTA) submits these comments in response to the Commission’s Notice seeking comment on recent petitions filed by AT&T and the National Telecommunications Cooperative Association (NTCA) regarding the ongoing evolution to networks based on Internet Protocol (IP) technology.¹ As explained in these comments, the transition to IP-based networks has been happening for years and offers the potential for significant consumer benefits. The Commission generally should maintain a light regulatory approach for IP-based retail voice service, but it should oversee interconnection for the exchange of voice traffic to ensure there is no harmful disruption to competitive providers and their customers as a result of the incumbent LECs’ technological transition.

INTRODUCTION AND SUMMARY

For years the Commission has recognized that the advent of IP technology could have significant ramifications for traditional telecommunications services. As the Commission explained when it opened a rulemaking proceeding to start considering these issues in 2004:

The rise of IP thus challenges the key assumptions on which communications networks, and regulation of those networks, are predicated: Packets routed across a global network with multiple access points defy jurisdictional boundaries. Networks capable of facilitating any sort of application that programmers can devise have empowered consumers to choose services they desire rather than merely accepting a provider’s one-size-fits-all offering. In this Notice, we seek comment on whether the proliferation of services and applications utilizing a common protocol may permit competitive developments in the marketplace to play the key role once played by regulation.²

Since that time, the effect of IP-based services in the marketplace has been significant. Cable operators now provide voice service to over 26 million households, the vast majority of which are served by IP-based equipment. Those services are attractive to consumers because they routinely are offered at relatively low rates and include features for which incumbent LECs often impose additional fees or which they cannot provide at all.³

In response, incumbent LECs have been upgrading their networks by deploying IP-based switches and fiber optic facilities. These upgrades are intended to enable incumbent LECs to increase the potential revenues they can generate from retail customers while reducing the operational costs associated with their networks.

³ Notwithstanding the inroads that cable operators have made in the residential voice marketplace, incumbent LECs continue to serve the majority of voice lines in virtually every state in the country. See Local Telephone Competition Report: Status as of December 31, 2011, Table 9 (WCB IATD Jan. 2013), at http://transition.fcc.gov/Daily_Releases/Daily_Business/2013/db0114/DOC-318397A1.pdf. In addition, the two largest incumbent LECs also are the two largest providers of wireless voice services, each serving well over one hundred million customers.
While these network upgrades have been in progress for some time, AT&T’s petition identifies a new element that warrants the Commission’s attention. Specifically, for the first time, incumbent LECs are actively planning to take older TDM-based switches out of service and rely entirely on IP-based switches. An incumbent LEC’s transition to an all-IP network in a given location is significant because it triggers numerous consequences for every other carrier that exchanges traffic with that incumbent LEC. As just one example, as the Commission’s Technological Advisory Council has documented, an all-IP environment requires different signaling protocols and different or updated databases to ensure that traffic is delivered to its correct destination.\(^4\)

As described in these comments, this technological transformation generally should not trigger any need for new retail regulation. Since opening the IP-Enabled Services proceeding in 2004, the Commission already has extended many of the key elements of the Title II regime to VoIP providers, including E-911, outage reporting, local number portability (LNP), privacy, CALEA and disabilities access. These decisions ensure that consumers that switch to VoIP services – whether provided by incumbent LECs or competitive providers – are provided with the same protections as consumers of traditional phone services. The Commission also has undertaken significant reform of the universal service and intercarrier compensation regimes to reflect the ongoing transition to IP-based networks and services.

While importation of the entire legacy PSTN regime is not warranted, the Commission should remain mindful of the significant disruption that this transition could cause for all industry participants. Even as the market share of incumbent LECs declines, incumbent LEC

\(^4\) See Recommendations of the Technological Advisory Council (December 2012) (Slides 51-58), at http://transition.fcc.gov/bureaus/oet/tac/tacdocs/meeting121012/TAC12-10-12FinalPresentation.pdf. As documented by the TAC, competing providers are not the only entities affected by the transition to an all-IP environment. There are a variety of potential consumer effects that also will need to be considered.
switching and transport facilities continue to play a vital role in today’s marketplace and therefore the Commission has an important role to play in overseeing a major transition in these facilities. We are supportive of AT&T’s proposal to conduct a test of phasing out TDM equipment, but Commission oversight of this process will be essential to ensure its success.

I. A LIGHTER REGULATORY APPROACH IS WARRANTED WITH RESPECT TO IP-BASED RETAIL SERVICES.

A. The Transition To An All-IP Network Is An Overwhelmingly Positive Development For Consumers.

Based on the cable industry’s experience, there is no doubt that the transition to an all-IP environment for voice services should be extremely beneficial for consumers. Cable operators have been deploying IP equipment to provide voice services for more than a decade. While customers may not know or care that these IP-based services use different technology than traditional phone services, they have embraced these services because they offer more functionality at a lower price than traditional phone service. For example, features like the ability to display Caller ID information on the television screen or converting voice mail to text that can be delivered via e-mail are standard features in many cable operators’ voice offerings. As incumbent LECs deploy IP-based equipment in their networks, we would expect their customers to experience some of these same benefits.

In addition to the benefits that individual providers can deliver to their customers when they deploy IP technology in their own networks, there are additional benefits that could arise as companies begin to exchange voice traffic with each other in IP format. At a minimum, exchanging voice traffic in IP format will enable IP-based providers to phase out the use of gateways that have been deployed solely to convert traffic to TDM format so that it can be
exchanged with incumbent LECs. In addition, exchanging voice traffic in IP format offers the potential to have fewer interconnection points that cover a larger geographic area.

**B. The Current Regulatory Regime For IP-Based Voice Services Appropriately Balances Consumer and Provider Interests.**

As incumbent LECs begin the process of modernizing their networks in the same way as competitive providers, the challenge facing the Commission is to determine whether, and how, to adapt the current regulatory regime. As NTCA explains in its petition, the goal for the Commission is to find the right balance between the extremes of complete deregulation on the one hand and reflexive application of all existing requirements on the other hand. At a minimum, the Commission will want to identify unnecessary obstacles, if any, to new deployment of IP-based equipment, but ultimately more fundamental changes may need to be considered with respect to legacy regulatory obligations.

The focus of any Commission activity should be the transition to all-IP networks for the purpose of providing voice services, i.e., the continuation of the process the Commission started years ago in the *IP-Enabled Service* proceeding. Because the Commission already has imposed a set of core public safety and consumer protection obligations on interconnected VoIP providers (including E-911, outage reporting, local number portability, privacy, CALEA and disabilities access) that apply regardless of the regulatory classification of VoIP services, the Commission can be sure that incumbent LEC customers will be protected as the transition from TDM to IP technology takes place, just as customers of other VoIP providers are today.

The ILECs’ transition from TDM to IP technology in the voice network should not be used as a pretext for imposing additional regulation on broadband services or on competitive

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5 See, e.g., Comments of the National Cable & Telecommunications Association, WC Docket No. 10-90 (filed Feb. 24, 2012) at 6-7.

6 NTCA Petition at 9-10.
VoIP services. Where competition exists, as it does throughout most of the country for broadband and voice services, the current regulatory regime that exists for VoIP is sufficient. In particular, there is no need for price regulation or quality of service regulation in areas that are served by two or more facilities-based providers because those providers will have every incentive to offer services that are attractive to consumers.

II. THE TRANSITION OF ILECS TO ALL-IP NETWORKS OFFERS POTENTIAL BENEFITS TO INDUSTRY PARTICIPANTS, BUT ALSO CREATES THE POTENTIAL FOR SIGNIFICANT DISRUPTION.

Because incumbent LECs have been the dominant providers since the time most competing alternatives were deployed, interconnection with the incumbent LEC has been a prerequisite to competitive entry in the voice market. Not only is direct interconnection necessary to exchange traffic with the incumbent LEC, most competitive providers rely on incumbent LECs to provide transit services to facilitate the exchange of traffic with other carriers, including rural LECs, with whom they do not directly interconnect.

Changes in the market share of the participants in these interconnection arrangements have not generally led to changes in the physical arrangements themselves. While increasing traffic volumes may lead some pairs of carriers to replace indirect arrangements with direct interconnection, all competitive providers must retain their TDM connections to the incumbent LEC regardless of traffic volumes, both for purposes of reaching the incumbent LEC’s customers and for purposes of using incumbent LEC transit services. As a result, while many incumbent LEC customers have now made the decision to purchase service from competing wireline or wireless providers, most voice traffic continues to be exchanged between carriers through the
TDM-based interconnection arrangements that were established in the aftermath of the 1996 Act and the *Local Competition Order*.\(^7\)

Given the continuing significance of TDM-based incumbent LEC switches for the exchange of traffic among all providers, it should be obvious that decommissioning those switches will have broad implications for competing service providers and their voice customers. For companies that already operate IP-based networks, the transition of the incumbent LECs offers the potential for some positive developments. As noted above, when all voice traffic is exchanged in IP format, IP-based carriers may be able to have fewer interconnection points and they no longer will need gateway equipment that was deployed solely for the purpose of converting traffic to TDM format so that it could be exchanged with the incumbent LEC.

At the same time, a major infrastructure upgrade of this nature also has the potential to be highly disruptive. As noted above, in an all-IP environment, different signaling protocols and databases will be needed to ensure that traffic is delivered properly. Using these protocols and databases for all providers and all types of voice traffic without the fallback of exchanging traffic in TDM format will require adjustments by all providers. While implementing all of this would be challenging enough among companies that do not compete with each other, the complicated history of regulated interconnection arrangements between incumbent LECs and their competitors increases the complexity of the task. Consequently, as we discuss in detail in the following sections, Commission oversight of incumbent LEC plans and implementation will be needed to maximize beneficial outcomes and minimize harmful disruption.

III. COMMISSION OVERSIGHT OF AT&T'S PROPOSED TRIAL WILL BE NEEDED TO PRODUCE A WIN-WIN SITUATION FOR CONSUMERS AND INDUSTRY PARTICIPANTS.

In its petition, AT&T asks the Commission “to consider conducting, for select wire centers chosen by [incumbent LECs] that elect to participate, trial runs of the transition to next-generation services, including the retirement of [TDM] facilities and offerings and their replacement with IP-based alternatives.”8 In trial areas, AT&T proposes that the Commission eliminate “outdated ‘telephone company’ regulations” and “preclude carriers (including carrier customers) from demanding service or interconnection in TDM format.”9 AT&T also asks the Commission to “implement reforms to facilitate the migration of end-user customers from legacy to next-generation services” and “keep IP services free of legacy regulation.”10 As described below, NCTA generally supports the concept of testing the retirement of TDM facilities, provided the Commission plays an oversight role to ensure that consumers and competitors are not harmed during this transition.

A. A Trial Could Be Helpful In Identifying Issues That Might Arise As ILECs Upgrade Their Networks Across the Country.

As noted in AT&T’s petition, the transition of incumbent LECs from TDM-based equipment to IP-based equipment raises a number of important issues that would benefit from a “real world” test. In general, this is not a test of whether it is technically feasible to exchange IP-based voice traffic. Many companies, including AT&T and other ILECs, already exchange some types of voice traffic in IP format and there is no doubt that it is technically feasible.11

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8 AT&T Petition at 1.
9 Id. at 21.
10 Id. at 21-22.
11 Indeed, the largest incumbent LECs already offer IP-based wholesale services that seem to include many of the functions necessary for exchanging voice traffic with competitive LECs. See, e.g., AT&T VoIP Services, at http://www.business.att.com/content/productbrochures/AVOICS_1169.pdf; Verizon Global Wholesale, SIP Gateway Service, at http://www22.verizon.com/wholesale/solutions/solution/SIP%2BGateway%2BService.html;
Consequently, the purpose of this testing is to identify issues that might arise for incumbent LEC customers, as well as for incumbent LEC competitors and their voice customers, as TDM services and equipment are eliminated and the incumbent LEC transitions solely to IP-based services and equipment. In that sense, we view the purpose much more broadly than AT&T, which seems to be of the view that this is nothing more than a trial of a new deregulatory regime for voice services.\textsuperscript{12}

As part of any trial, the Commission should confirm that all the obligations that already have been extended to Interconnected VoIP providers (e.g., LNP, E-911) will apply to AT&T and any other incumbent LEC during the testing process. Confirming from the start that all of these obligations will be imposed on incumbent LECs that deploy IP-based facilities for the provision of voice services will help to avoid disputes during the course of a trial and provide necessary protections to customers of the incumbent LECs, as well as to competing providers and their voice customers. For example, the LNP regime is highly beneficial to consumers and to providers and the Commission should make clear to AT&T and other incumbent LECs that those obligations will continue to apply as they transition from TDM to IP-based voice networks.

B. The Commission Should Require AT&T to Provide Much More Detail on Its Plans for the Trial.

While NCTA generally favors the concept of a trial, at this point AT&T has not provided any of the detailed information that would be needed to judge whether its proposal is one that should be adopted. As AT&T acknowledges in the petition,\textsuperscript{13} a great deal more information will be needed from incumbent LECs, including the following:

\footnotesize{CenturyLink Wholesale Products and Services, IP Voice 1+ Termination, at http://www.centurylink.com/wholesale/pcat/natipvoiceterm.html.}\footnotesize{\textsuperscript{12}}

\footnotesize{Id. at 21-22.}\footnotesize{\textsuperscript{13}}
- Number and location of test sites;
- Time frame for deploying new IP switches;
- Time frame for decommissioning old TDM switches;
- Implications for existing interconnection and transit arrangements;
- Process for continued coordination among providers during the testing process;
- Planned outreach to consumers and other carriers in test areas; and
- Proposal for evaluating the success of the trial.

In addition to these issues, the Commission will need to pay special attention to the treatment of E-911 traffic. It should go without saying that any major network upgrade of the type proposed by AT&T should not proceed unless it is clear that there is a plan to ensure that all E-911 calls originated by customers of any carrier will be delivered to the appropriate public safety answering point (PSAP). The Commission will need to carefully review AT&T’s plans for the routing of E-911 traffic to PSAPs (and how that traffic will be converted from IP to TDM if necessary in cases where the PSAP has not yet upgraded to IP-based equipment).

C. The Commission Must Ensure that AT&T Takes Steps to Avoid Harmful Disruption of Interconnection Arrangements.

As described above, the fact that many customers are migrating away from traditional phone services does not change the fact that incumbent LEC switching facilities are still a vital hub in today’s communications marketplace. Because of the significant effect that decommissioning TDM-based switches can have on all the competing providers that are interconnected with the incumbent LEC, the Commission must take steps during this trial to ensure this network upgrade is not used by the incumbent LEC as a pretext for anticompetitive behavior.
Specifically, the Commission should ensure that all companies that currently have direct TDM-based interconnection arrangements with AT&T in test areas will be provided a meaningful opportunity to convert to IP-based interconnection arrangements under reasonable terms and conditions. While such arrangements obviously will not be identical to current arrangements, the Commission should make clear that other companies should not be made worse off simply because AT&T is upgrading its network. This is particularly true for those companies that already operate IP networks and have been frustrated by AT&T’s past reluctance to exchange voice traffic with competitors in IP format.

Ideally the terms and conditions of interconnection at AT&T’s IP switching facilities should be developed through a collaborative process among all interested parties. For example, for purposes of the trial, AT&T could post a set of proposed terms and conditions for direct interconnection and exchange of voice traffic, which would be followed by collaborative discussion among interested parties and the Commission staff before a final policy is established. A collaborative process such as this would enable participants to focus on the goals of the trial and would produce more consistent data from which conclusions can be drawn. AT&T also would need to explain how it plans to exchange traffic with companies that still operate TDM equipment and cannot or will not be in a position to upgrade that equipment for the test.

Through a similar process, the Commission should ensure that AT&T continues to facilitate indirect interconnection between other providers in test areas under reasonable terms and conditions. As the Commission has long recognized, it is not efficient for every competitive provider to directly interconnect with every other competitive provider and consequently indirect interconnection (and incumbent LEC transit services that facilitate such arrangements) remain critical to the development of competition.
While resolving issues through a collaborative process among the parties should be the preferred approach, for purposes of the trial the Commission should exercise any authority necessary to ensure that carriers are able to remain interconnected with each other and that voice customers of competitive providers are able to make and receive calls from incumbent LEC customers. While AT&T seems to envision this testing process as primarily a test of a new deregulatory regime, for all the reasons described in these comments it will be critical for the Commission to be engaged in the process, including the exercise of any necessary authority to resolve disputes regarding interconnection and transit arrangements. Once the Commission has had an opportunity to evaluate the testing process and results, it will be in a better position to address any remaining policy issues surrounding the transition to an all-IP network.

IV. NCTA HAS SIGNIFICANT CONCERNS REGARDING SOME OF THE PROPOSALS IN NTCA’S PETITION.

In its petition, NTCA asks the Commission to initiate a rulemaking to “examine means of promoting and sustaining the ongoing evolution of the Public Switched Telephone Network from a [TDM]-based platform to an [IP]-based infrastructure through targeted regulatory relief and the establishment of tailored near-term incentives.” NTCA recommends that the Commission take a balanced approach that starts with the existing regulatory framework and keeps, discards, or modifies requirements as the IP migration continues. In conjunction with this “smart regulation” approach, NTCA also encourages the Commission to “provide carriers with an incentive to offer IP interconnection by allowing them to recover through rates developed pursuant to the Act the costs of exchanging traffic through such interconnects” and to provide

14 NTCA Petition at i.
15 Id. at ii.
“small rural local exchange carriers with sufficient and predictable universal service support regardless of whether a customer purchases regulated ‘plain old telephone service.’”\textsuperscript{16}

At a high level, we agree with NTCA that “smart regulation” is better than extreme alternatives. As the Commission has recognized in its decisions in the \textit{IP-Enabled Services} proceeding, the best regulatory approach for VoIP services is neither radical deregulation nor reflexive application of existing rules. Instead, the Commission has applied the rules it determines are necessary only after careful consideration of the relative costs and benefits to providers of voice services and their customers.

Although we agree with the high-level view espoused by NTCA, we have significant concerns about some of the proposals included in the petition, particularly proposals that would (1) permit rural LECs to impose “interconnection charges” when they exchange traffic in IP format and (2) provide those carriers with additional universal service support for upgrading their networks to IP-based equipment.\textsuperscript{17} NTCA’s proposal to impose interconnection charges that would “reward carriers that seize the opportunity to invest in IP-enabled interconnections across their networks” seems like an attempt to extend the access charge regime – which the Commission decided to eliminate in the 2011 \textit{CAF Order}\textsuperscript{18} – to IP-based networks. We are skeptical of such a proposal. To the extent two providers are exchanging voice traffic with one another in IP format, NTCA fails to explain why one carrier would pay the other and what the basis for such charges would be. We note that cable operators have been “seiz[ing] the opportunity to invest in IP-enabled” technology for over a decade, but we suspect that NTCA’s members would not be eager to compensate them for those efforts.

\textsuperscript{16} Id. at iii.

\textsuperscript{17} Id. at 14-15.

We also have significant concerns about any proposal to offer rural LECs additional universal service support to upgrade their networks to IP-based technology. All providers face choices about when and how to deploy new technologies as they develop and there is no reason that incumbent LECs should receive government subsidies for undertaking investments that they and other providers have been able to undertake without such subsidies.\textsuperscript{19}

Moreover, NTCA provides no evidence to suggest that subsidies are even needed in connection with upgrading from TDM to IP-based equipment. To the contrary, while IP-based switches undoubtedly require LECs to undertake new capital expenditures, those costs are offset by reduced operating expenses. As a result, the annual cost associated with IP-based equipment may be lower than it is today. Moreover, deploying such equipment will open up new revenue opportunities that will help offset the investment in new equipment. In the absence of any sort of discussion of the economics of deploying IP-based equipment, NTCA’s suggestion that the IP transition will trigger a need for additional universal service funding is premature at best.

\textsuperscript{19} NTCA renews its call to receive additional universal service support for middle mile facilities as well. As NCTA explained in previous comments, the Commission should not adopt such a proposal. See Comments of the National Cable & Telecommunications Association, WC Docket No. 10-90 (filed Jan. 18, 2012) at 6.
CONCLUSION

The ongoing transition of incumbent LEC networks from TDM to IP-based technology creates the possibility for significant consumer benefits. To maximize these benefits while reducing the potential for harmful disruption to competitive providers, the Commission should begin the process of establishing a test bed that incorporates the suggestions contained in these comments.

Respectfully submitted,

/s/ Steven F. Morris

Steven F. Morris
Jennifer K. McKee
National Cable & Telecommunications Association
25 Massachusetts Avenue, NW – Suite 100
Washington, DC 20001-1431

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