Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
AT&T Petition to Launch a Proceeding	)	GN Docket No. 12-353
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	)	

COMMENTS OF THE WESTERN TELECOMMUNICATIONS ALLIANCE

WESTERN TELECOMMUNICATIONS ALLIANCE

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Summary

The Western Telecommunications Alliance ("WTA") submits initial comments with respect to the petitions of AT&T Inc. ("AT&T") and the National Telecommunications Cooperative Association ("NTCA") regarding the ongoing evolution of the public network from a Time-Division Multiplexing ("TDM")-based platform to an Internet Protocol ("IP")-based infrastructure.

WTA agrees with NTCA that the TDM-to-IP transition is well under way, particularly among rural telephone companies ("RLECs"). In fact, the IP implementation experiences of WTA members and other RLECs constitute effective "trial runs" that can provide the Commission and the industry with valuable information regarding the service, quality and consumer issues that must to be addressed during further TDM-to-IP evolution.

With respect to AT&T's proposal for "trial runs," WTA is not clear as to what is being requested but would be interested in reviewing the plans and schedules for such "trial runs" as they become more concrete and detailed. Theoretically and subject to appropriate legal and service continuity considerations, WTA believes that certain types of limited technical "trial runs" may yield useful information regarding various foreseen and unforeseen service, quality and consumer impact issues, problems and consequences of the transition from TDM to IP, but only if they include a broad and representative sample of carrier sizes, service area types (urban, suburban and rural), transmission technologies, network structures and geographic regions. WTA notes that there is a clear and substantial difference between technical and regulatory "trial runs," and emphasizes that it supports only technical experiments that focus upon service impacts rather than regulatory issues.

WTA notes that previous technological changes – for instance, the transformation from analog to digital telephony – did not necessarily require substantial changes in the Communications Act or the Commission's Rules. Moreover, to the extent that regulatory changes are ultimately necessary or feasible, they are not amenable to "trial runs." Rather, any necessary regulatory changes will need to be considered, discussed and analyzed by a broad spectrum of interested parties on an industry-wide basis. Potential areas of regulatory review as TDM-to-IP evolution proceeds include interconnection, intercarrier compensation, CoLR obligations, universal service support, and continuing regulatory and reporting obligations.

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The Western Telecommunications Alliance ("WTA") hereby submits its initial comments with respect to (a) the "Petition to Launch a Proceeding Concerning the TDM-to-IP Transition" filed by AT&T Inc. ("AT&T") on November 12, 2012; and (b) the "Petition of the National Telecommunications Cooperative Association for a Rulemaking to Promote and Sustain the Ongoing TDM-to-IP Evolution" filed by the National Telecommunications Cooperative Association ("NTCA") on November 19, 2012. These comments are filed pursuant to the schedule and procedures set forth in the Commission's Public Notice (*Pleading Cycle Established on AT&T and NTCA Petitions*), DA 12-1999, released December 14, 2012.

WTA agrees with NTCA that the evolution of the public network from a Time-Division Multiplexing ("TDM")-based platform to an Internet Protocol ("IP")-based infrastructure is already well under way, and that rural local exchange carriers ("RLECs") have made substantial progress in deploying IP-compatible facilities and providing their rural customers with access to IP services. In fact, the experiences of WTA members and other RLECs with IP implementation

constitute ongoing and effective "trial runs" that can provide the Commission and the industry with valuable information regarding the service issues and consumer impacts that will need to be monitored and addressed during further TDM-to-IP evolution. With respect to AT&T's proposal for some sort of "trial runs" that appear to involve "retirements" of certain TDM facilities and services and their "replacement" with unspecified IP-based alternatives, WTA will be interested in reviewing the plans and schedules for such "trial runs" as they become more concrete and detailed. Subject to appropriate legal and service continuity considerations, WTA believes that certain types of limited technical "trial runs" may yield useful information regarding various foreseen and unforeseen service, quality and consumer issues, problems and consequences of the transition from TDM to IP, but only if they include a broad and representative sample of carrier sizes, service area types (urban, suburban and rural), transmission technologies, network structures and geographic regions. WTA notes that there is a clear and substantial difference between technical and regulatory "trial runs," and emphasizes that it supports only technical experiments that focus upon service effects rather than regulatory issues. As with the previous transitions to digital telephony and high definition television, it is essential for the Commission to monitor and retain the ability to modify and adjust the service, quality and other consumer consequences of a TDM-to-IP transition on a limited basis before it promotes, accelerates or mandates major nationwide technology changes. In contrast, regulatory changes and experiments do not need to be made, and should not be made, in connection with limited "trial runs" of facility and service transitions. In addition to due process and equal protection questions arising from application of different rules to similarly situated entities, rule changes in connection with "trial runs" are premature and likely to cause distortions in the experimental data while the details and problems of the technical transition are being ascertained and resolved.

Rather, the information and analyses needed to address basic future IP network issues – such as interconnection, intercarrier compensation, carrier of last resort obligations, universal service support, and future federal and state regulation and reporting obligations – will require extensive discussion and debate among a comprehensive group of public and private stakeholders on a nationwide basis.

I
The Western Telecommunications Alliance

The Western Telecommunications Alliance is a trade association that represents approximately 250 RLECs operating within the twenty-four states located west of the Mississippi River, including Alaska and Hawaii.

WTA members are generally small companies serving sparsely populated rural areas. Most members serve fewer than 3,000 access lines in the aggregate, and fewer than 500 access lines per exchange. Their primary service areas are comprised of sparsely populated farming and ranching regions, isolated mountain and desert communities, and Native American reservations. They must construct, operate and maintain their networks under conditions of climate and terrain ranging from the deserts of Arizona to the rain forests of Hawaii to the frozen tundra of Alaska, and from the valleys of Oregon to the plains of Kansas to the mountains of Wyoming. The major common feature of these diverse areas is that the per-customer costs of constructing, operating and maintaining both wireline and wireless networks therein are much higher than in urban and suburban America. Nonetheless, WTA members have made significant progress in deploying both fiber optic and hybrid fiber-copper Digital Subscriber Line ("DSL") facilities and in making IP and other advanced services available to their rural customers.

II
Definition of "IP" and "All IP" Network

Contrary to certain poorly informed perceptions, the Public Switched Telecommunications Network ("PSTN") is not about to be turned off or to die, or to be scrapped and replaced by a wholly new "all-IP" network. Rather, particularly in RLEC service areas, the future "IP" or "all-IP" network will be comprised predominately of the very same fiber optic trunks and loops and hybrid fiber-copper loops that have been increasingly deployed and used for the current evolving TDM-based network. The major facility "change" will be the replacement of circuit switches with soft switches -- another process which is already well under way. Even if the Commission takes no action to schedule or accelerate a TDM-to-IP transition, the PSTN will continue to develop into a substantially or entirely IP network in accordance with customer broadband service demands and available investment resources.

Very early in this proceeding, the Commission should improve the quality of discussion and make sure that participants are on the same page by defining as best it can what it means by an "IP network" or, if different, an "all IP network." For example, does an "IP" or "all IP" network mean that every carrier and service provider must by a certain date eliminate all TDM transmission and conversions, and retire all TDM facilities and equipment presently in use on its network? Or does the Commission contemplate that carriers and other service providers may continue to employ TDM in technically feasible manners in their networks – for example, in conjunction with line frame adaptors that allow TDM or IP connections back to a soft switch – in order to accommodate consumers that may not yet want to subscribe to IP services or that may not yet have access to sufficient and/or affordable broadband capacity and/or customer premises equipment?

Does the Commission's concept of an "IP" or "all IP" network require certain minimum network structures, facilities or equipment such as fiber-to-the-home ("FTTH") or fiber-to-the-node ("FTTN") loop plant, soft switches, routers, broadband loop carriers, application administration and management, gateways, border controllers, and special customer premises connections and handsets? Or will carriers and other service providers have the flexibility to deploy any network structure, facilities or equipment they desire as long as their customers can use certain IP services and communicate with other IP users and locations?

Must an "IP" or "all IP" network provide a minimum broadband capacity or quality of service to all residential or business customers? Or will carriers and other service providers have the flexibility to determine their own broadband capacities and service quality? Of particular interest to RLECs, will the Commission continue to encourage the deployment of 100 megabits per second ("Mbps") downstream, 50 Mbps upstream (or even greater Gigabit range) broadband capacities in urban and suburban areas, while offering high-cost support for only 4 Mbps downstream, 1 Mbps upstream broadband capacities in high-cost rural areas?

At the present time, there is a very broad variety of voice and data network structures employed by large, mid-sized and small telephone, wireless, cable and Internet access companies throughout the United States.[1] In fact, some companies use different network structures in different areas or exchanges that they serve. WTA believes that this variety calls for substantial flexibility by the Commission in defining an "IP" or "all IP" network in a technically neutral manner so as not to require substantial new investment and/or cause extensive service disruptions by adopting IP service standards and other regulations that force many carriers and service providers to expand, modify or rebuild major portions of their networks. At the same

[1] Whereas many carriers have fiber, copper and soft switch facilities that can be used both in the PSTN and an "IP" network, they have them in different amounts and configurations.

time, any requirement or schedule for transition to "IP" or "all IP" networks must include definitions or lists of characteristics sufficient to enable carriers and other service providers to determine whether they are in compliance.

III
Current Evolution of RLEC Networks Toward IP

WTA members and other RLECs currently provide access to broadband services to substantial majorities of their rural customers. Whereas some RLECs have deployed FTTH or fiber-to-the-curb ("FTTC") facilities in some of their exchanges, most RLEC broadband services are presently provided over hybrid fiber-copper facilities such as Fiber-to-the-Node ("FTTN") configurations that leverage existing copper loop plant through the use of DSL technologies. WTA members were increasing broadband availability and speeds rapidly prior to 2008-2009; however, recession, universal service support caps and benchmarks, and intercarrier compensation reductions have reduced or threatened short-term and long-term revenue streams to such a degree since that time that some RLECs and their lenders have postponed, cut back or cancelled broadband infrastructure investment projects.

Notwithstanding the unfavorable investment climate, some WTA members have been continuing to upgrade their networks along the evolutionary path from TDM-to-IP. WTA would like to convey to the Commission the advances, issues and problems its members are encountering during this hands-on process, and will offer such information both in these comments and in subsequent *ex parte* meetings.

WTA Member No. 1. For example, one WTA member is currently in the process of re-configuring its network to collapse nine (9) host TDM switches and twenty-five (25) remote TDM switches into six (6) soft switches. It is also replacing existing Digital Loop Carrier

("DLC") with next generation Broadband Loop Carrier ("BLC") in various end offices to support IP voice and broadband services from the same access platform. Because budgetary limitations are requiring it to extend the DLC-to-BLC conversion process over at least three years, the member is continuing to operate both soft switches and TDM switches in areas where it has not yet deployed BLC. Essentially, this is accomplished by plugging a line frame adapter into the line bays of the TDM switch, which allows the re-use of the line bay and all of the line cards with a TDM or IP connection back to the soft switch that fronts the TDM switch. The member is planning to add a Session Border Controller ("SBC") during 2013 to allow originated TDM and IP voice calls to be delivered to locations outside its network over an end user's existing broadband connection, whether the broadband connection is provided by the member or by a third party . When combined with the soft switch media gateway, the SBC will also allow the member to convert TDM long distance calls originating within its network to IP calls for transport and termination on less costly IP networks.

Among the things that the member has learned to date from its TDM-to-IP transition process are: (1) that the conversion from TDM-to-IP has not been as difficult or time-consuming as the previous conversion from analog TDM to digital TDM; (2) that customers do not have to buy new customer premises equipment ("CPE") to continue to receive voice service from the member after the conversion (although carriers may have to replace or augment network interface equipment at the customer's premises, particularly if they deploy DSL or replace existing copper loops with FTTH); (3) that middle-mile networks must be upgraded from traditional TDM (SONET/SDH, T1/T3) to Ethernet (although the member has migrated to Ethernet over SONET EOS as an interim solution, bandwidth demands are driving it to upgrade to Carrier Ethernet in 2013);. (4) that first generation DLC must be upgraded to next generation

BLC supporting FTTH or VDSL2 to meet increasing bandwidth needs; (5) that additional Media Gateways or adjunct hardware supporting Emergency Stand-Alone ("ESA") capabilities must be installed to assure interexchange calling and 911 routing to the local law enforcement office in the event that the IP links from the soft switch to the DLC/BLC replacing legacy TDM switches are disrupted for any reason.

WTA Member No. 2. A second WTA member has converted approximately 75% of its network from TDM to IP, and approximately 60% of its switching capacity from traditional TDM switches to "hybrid" soft switches that are both TDM and IP capable. The typical steps in this process are: (1) copper backhaul infrastructure is replaced with fiber; (2) aggregation equipment is replaced with Ethernet based access platforms or FTTH (fiber is generally used when it is economically feasible because aging copper plant needs to be replaced; where copper plant is still functioning at an acceptable level of quality, it is retained); and (3) circuit switching facilities are replaced with TDM-IP-compatible soft switches at any point in this process.

The WTA member has found that its TDM-to-IP conversions have allowed it to offer more and higher quality broadband data and video services and applications to its rural subscribers. However, whereas the majority of its voice traffic is now packetized, its voice telephone service has remained pretty much identical whether a customer has TDM or IP service. However, its IP customers have the ability to subscribe to data telephone services such as Skype, magicJack or Vonage. In addition, the member has been experimenting with Session Initiation Protocol ("SIP")-based data phones, but presently continues to switch these through its soft switches in the same way it switches its other voice services so that the service provided to SIP-based customers remains identical to the voice service provided through traditional handsets.

Among the things that the member has learned to date from its TDM-to-IP transition

process are: (1) all of the soft switches that it has investigated have been hybrids that are compatible with both TDM and IP services; (2) hybrid soft switches are a necessary migration device to enable the offering of either TDM or IP services to each customer as conversions proceed; (3) customers do not need to purchase new equipment as they migrate from TDM to IP service, but can purchase Skype, magicJack, Vonage or SIP phones if they wish, plus computers and other data and video equipment; (4) installers and other technicians do not have to visit customer premises during TDM-to-IP conversions unless FTTH loops are being deployed; and (5) service interruptions are minimal during TDM-to-IP conversion, with some minor maintenance window activities at the time of switch conversions and brief subscriber-by-subscriber interruptions at the time each subscriber is converted.

WTA Member No. 3. Yet another WTA member already operates its network with a soft switch and Session Border Controller at its main central office location. Currently the soft switch interconnects with its LATA tandem via TDM SS7 trunk facilities that are TDM SONET based with fiber interconnection at the meet point. The soft switch has an IP trunk group established using SIP protocol to a wholesale long distance switch via a dedicated Ethernet Private Line connection that utilizes the Session Border Controller.

The member's access network has been upgraded to Active Ethernet FTTH for the majority of customers served from the central office wire center and three remote sites. There are IP DSLAMs located at two sites that serve a few customers via copper drops with ADSL2+ connectivity for broadband. A one (1) gigabit per second ("Gbps") fiber interoffice ring was established to connect all of the Active Ethernet shelves and IP DSLAM shelves back to the main central office site. All of the WTA member customer's voice services interface the soft switch via an IP connection using SIP protocol. The voice packets have been established with a

higher priority for quality of service purposes on the 1 Gbps ring and are provisioned in a separate VLAN from data and management IP traffic.

There are a number of customers who are served via a licensed 700 MHz radio system that utilizes DOCSIS cable modem standard for Internet connectivity. A few of these radio customers also obtain voice services which are provisioned as SIP subscribers on the soft switch connecting through the Session Border Controller ("SBC") for traversal from the public realm to the private IP realm of the soft switch. This would be similar to a Vonage-like service. These customers either utilize integrated Analog Terminal Adapters ("ATA") build into the cable modems or alternatively are provisioned with external ATA device like the Cisco/Linksys PAP2 for VOIP services.

A TDM SONET interoffice transport system is still maintained for T1 private line circuits being delivered to the WTA member's network via its fiber meet point. The last mile delivery of the T1 circuits to all but one cell site in the WTA member's service area are being handled via fiber ONTs over IP using pseudo wire technology. There is still one cell site that the T1 circuits are being delivered via copper T1 span lines.

The process of migrating from TDM to IP presented a few challenges including but not limited to interoperability between network elements, increased network security, staff technical training and development, network troubleshooting tools and methodology but overall the process was fairly straight forward.

On the FTTH and ADSL2+ customer drops the customer premise equipment remains the traditional analog phone sets. For FTTH customers, the ONT on the side of the customer's house handles the conversion from IP to TDM. While the company could handle VOIP over the

ADSL2+ modem Ethernet port, the voice over IP service is currently still being converted at the IP DSLAM shelf and rides the copper drop cable in the voice frequency band.

It has been this member's experience that the larger companies that operate existing LATA tandem switches have not yet been willing to discuss with smaller RLECs their long-term plans for converting from TDM-to-IP interconnection and trunking. A common response has been: "It is not currently planned or being considered in our network plans"

IV
Ground Rules for Technical "Trial Runs"

Under appropriate legal and technical circumstances, a limited and readily monitored number of formal technical "trial runs" by a diverse and representative group of carriers may help the Commission to identify and address some of the foreseen and unforeseen service, quality and consumer impact issues, problems and consequences of the TDM-to-IP transition.

One threshold question is whether trial runs of "all IP" networks are technically feasible. As detailed above, WTA members have experience with the deployment of IP services while employing hybrid soft switches that are compatible with both TDM and IP services so that no customers lose their existing services, are forced to obtain new CPE, or become unable to communicate with households and businesses that are still using TDM. It is not clear in AT&T's petition what type of "trial runs" it has in mind, particularly whether and/or when "retirements" of TDM facilities and services will preclude customers in "all IP" exchanges from retaining the services they desire and from remaining able to receive calls from, and make calls to, locations that are still using TDM.

The other threshold question is whether "all IP" trial runs would be lawful under the existing statutory and regulatory framework. If some customers or customer groups would suffer

loss or degradation of their existing voice service during a trial run, would such a trial run be lawful under the provisions of Sections 201, 202 and 214 of the Act, as well as under carrier of last resort ("CoLR"), service quality or other state requirements? What kind of subscriber notices and regulatory approvals of trial runs would have to be provided and obtained under Section 214 and state requirements? Would the Commission be required to pre-empt certain state laws and/or regulations in order to authorize trial runs? Under what statutory authority and circumstances would the Commission be able to require carriers to restore TDM facilities and capabilities in whole or part, if warranted, during or after a trial run? Under what statutory authority and circumstances would the Commission be able to provide universal service support or other financial assistance that would help defray additional costs incurred by carriers in order to participate in trial runs?

If these critical hurdles can be cleared, technical trial runs may provide some useful information. For example, whereas the experience of WTA members to date has been the TDM-to-IP conversions proceed relatively smoothly when hybrid TDM/IP-compatible soft switches are employed, such conversions may entail very different impacts, issues and problems where carriers seek to "retire" their TDM facilities and services completely and move more rapidly to an "all-IP" network. Also, whereas WTA members and other RLECs have been deploying IP increasingly on their own local networks, they are not certain how their connections to the outside world will be affected and what routing and/or technical modifications will be required if and when tandem switching networks operated by unrelated carriers are converted from TDM to IP. Third, whereas the IP extensions and deployments of WTA members do not appear to have entailed substantial disruptions or to have required expensive modifications of the services of other entities such as burglar and fire alarm companies, this many not be the case in more

densely populated areas or in more rapid conversions to "all-IP" networks. Likewise, it will be important to determine how increased IP or all-IP voice services will impact the caller identification features used by police, fire and ambulance services to locate emergency 911 callers, and how much will it cost public safety agencies to resolve any 911 or E911 problems. Finally, whereas Internet congestion does not yet appear to have had significant adverse impacts upon existing VoIP service quality, there may be greater impacts upon IP voice service quality if IP congestion increases significantly when **all** voice calls within an area are carried over IP facilities.

For technical trial runs to be useful, it is essential that they be conducted by a very broad and diverse group of carriers and service areas. The TDM-to-IP transition issues and problems encountered are likely to be significantly different among large, mid-sized and small carriers, among wireline and wireless carriers, and among incumbent local exchange carriers and competitive local exchange carriers. They are also likely to differ substantially among urban, suburban and rural exchanges, and among exchanges that are served by multiple competitors and those than have only a single carrier. Transition issues and problems will also differ among states and regions due to varying cost structures, cultural preferences, and demographic characteristics.

Given this variety, the Commission should encourage (and, if necessary, offer incentives for) a diversified group of carriers of different types and sizes from all parts of the country to engage in technical "trial runs" of IP deployment, and to report back with respect to the successes, failures, and problems encountered. Whereas prior Commission authorization is not necessary to deploy fiber, soft switches and other IP-compatible facilities and services that operate in conjunction with TDM, Section 214 or forbearance authority (as well as actual and

sufficient notice to affected customers and service providers) would appear to be needed for complete termination of TDM capabilities in local and tandem networks. Such authority can be employed to limit or control the number and type of technical "trial runs," if any, that go all the way to replace TDM completely with IP until the Commission can better determine the nature and extent of the foreseen and unforeseen consequences of a full TDM-to-IP transition upon service, quality, customers and other service providers. ,

What the Commission should not want is an unrepresentative sample of trial runs dominated by a single carrier, type of carrier or type of service area. The problems and costs encountered by Verizon in converting from TDM to IP in Bethesda, Maryland will tell the Commission little or nothing how such transition will proceed in adjacent Washington, DC, much less along the Gulf Coast of Florida, or the small towns of Minnesota, or the mountain valleys of Wyoming, or anywhere in Alaska. In addition, the over-representation of a single carrier, type of carrier or type of service area can make it more difficult for the Commission to terminate the trial runs and restore the *status quo ante* if it determines that such trial runs and/or complete TDM retirements are no longer feasible.

Finally, as indicated above, WTA recognizes the clear difference between technical and regulatory "trial runs," and emphasizes that it supports only technical experiments. As with the previous transitions to digital telephony and high definition television, it is essential for the Commission to monitor and retain the ability to modify and adjust the service, quality and consumer effects of a TDM-to-IP transition on a limited basis before it promotes, accelerates or mandates sweeping nationwide technology changes. In contrast, regulatory and de-regulatory "trial runs" conducted by the Commission would raise substantial due process and equal protection issues because they would apply different rules to similarly situated entities, and in

any event are premature and likely to cause distortions in the experimental data until the details and problems of the technical transition are resolved. As also evidenced by the previous transitions to digital telephony and high definition television, it has been the case in the past that little or no change in the Commission's regulations was necessary to accommodate substantial changes in technology.

V
Regulatory Issues Not Amenable to Trial Runs

To the extent that regulatory changes are ultimately necessary or feasible, they will need to be considered, discussed and analyzed by a broad spectrum of interested parties on an industry-wide basis as the ultimate nature and scope (as well as the issues, problems and consequences) of an IP or all-IP network become better defined and understood. Potential areas of such regulatory review include interconnection, intercarrier compensation, CoLR obligations, universal service support, and continuing regulatory and reporting obligations.

WTA agrees that neither IP networks nor the Internet as a whole need to be subjected to the extensive pricing, operating, and reporting regulations traditionally imposed upon the former monopoly telephone networks. In fact, in a world of unpredictable revenue streams, limited universal service support, and disappearing intercarrier compensation, it is important for federal and state regulators to reduce regulatory cost burdens as much as feasible so that available financial resources can be focused more efficiently upon the upgrade of networks and the improvement of services. However, at the same time, regulators need to make sure that small carriers and service providers, like application and equipment vendors, have reasonable and affordable access to the network for their customers, and that all facilities-based carriers have

adequate and appropriate incentives and financial resources to deploy, operate and maintain the necessary IP infrastructure.

A. Interconnection Issues

The Commission and state regulators will need to identify, consider and resolve a variety of technical and financial issues regarding IP-to-IP interconnection that are likely to arise as IP assumes a greater and greater role in the network.

For example, what changes in federal and state statutes and regulations, if any, are needed to encourage just and reasonable IP-to-IP interconnection arrangements that will enable all Americans to enjoy reasonably comparable and affordable access to the 21st Century network? Will backbone providers and other carriers be required to negotiate separate IP-to-IP interconnection agreements with all other service providers, or will they be allowed to employ tariffs, statements of conditions and/or other devices as defaults where negotiation of individual agreements is unavailable, impracticable or unduly burdensome? Should large IP service providers be required to offer or negotiate just and reasonable IP-to-IP interconnection arrangements with smaller IP service providers? To what extent will the time-tested interconnection requirements and procedures of Sections 251 and 252 of the Communications Act be applied to an IP or all-IP network? Will Title I ancillary authority be employed to bring non-common carriers within the scope of Sections 251 and 252, or will further legislation be required?

Should peering arrangements be monitored and/or regulated in connection with an IP or all-IP network? Will they continue to be subject to voluntarily negotiation between individual providers, or should they be regulated in some manner by the Commission or the states to ensure

fair, reasonable and affordable access by smaller service providers and their customers? How should regulators address the denial of peering arrangements to requesting service providers? In particular, should the Commission or state regulators permit smaller service providers to be relegated to second-class, third-class, or other reduced status due to denial of peering status, or to the imposition of onerous terms, conditions, and pricing for interconnection and transit by larger service providers?

Given that many RLECs and other rural service providers currently use middle mile transit facilities and services furnished by unrelated large carriers to connect their rural networks with the Internet, what can or should the Commission or state commissions do to regulate the availability and pricing of such middle mile transit services in connection with IP or all-IP networks? How will rural service providers be assured the ability to connect their customers with larger IP networks and the Internet at affordable rates, and to obtain sufficient additional bandwidth as applications and service needs evolve and increase? Should the Commission or state regulators be authorized to monitor or arbitrate negotiations for requested new, expanded or upgraded middle mile facilities, or to require certain carriers to construct, expand or upgrade middle mile facilities within their traditional service areas in order to accommodate the bandwidth needs of other service providers that depend upon them?

What will happen to existing tandem switching facilities and transit routes during and after a TPM-to-IP conversion? Many rural exchanges are currently connected to the PSTN through the Class 4 tandem switches upon which they are homed. Particularly where such tandem switches are operated by unrelated carriers, what procedures and conditions should the Commission or state commissions require to protect the service continuity, quality and costs of RLECs and other service providers dependent upon a tandem switching network if and when the

tandem owner determines to retire or replace some or all of its tandem facilities or their TDM capabilities? What other steps should be taken to ensure that existing rural connections and routes to the public network are maintained or replaced in an orderly and affordable manner as TDM-to-IP evolution proceeds?

A TDM-to-IP transition is also likely to affect various databases and other arrangements for the identification, routing, completion, billing and collection of traffic. What steps should be taken by the Commission or state commissions to ensure that these arrangements are maintained or replaced in an orderly manner as TDM-to-IP evolution proceeds?

Should the Commission and state regulators consider and adopt a port and link system as a primary or alternative method of IP-to-IP interconnection?

B. Intercarrier Compensation Issues

How will the Commission's ongoing transition to "bill-and-keep" for existing TDM voice calls interact with and impact peering, transiting and other interconnection arrangements as the TDM-to-IP transition continues? Will the "both calling and called parties benefit" principle underlying "bill-and-keep" require IP service providers to recover all of their costs from their own customers, effectively requiring all interconnection relationships to be peering arrangements and eliminating transiting charges? What about service providers that ride on the network without operating any facilities of their own, and facilities providers that carry traffic that is not originated by, or terminated to, their own customers (and that would therefore receive no compensation for the use of their networks under a 'bill-and-keep" regime)?

What forms of intercarrier compensation are practicable and collectible in an IP world where minutes of use are replaced by packets that may converge from different directions? Does

a port and link system offer a reasonable and viable alternative? If intercarrier compensation is effectively eliminated, what incentive will there be for entities to invest in, operate and maintain expensive "last mile" network facilities in rural and other high-cost areas when they can more readily maximize their profits and minimize their risk by offering applications over the networks of others or limiting their networks to highly profitable urban and suburban areas?

C. Carrier of Last Resort Issues

WTA is aware that some states have recently reduced or eliminated CoLR obligations and have effectively deregulated VoIP services. However, there are still substantial CoLR or equivalent obligations remaining in Section 214(e) of the Communications Act, state laws and regulations, Rural Utilities Service loan agreements, and telecommunications cooperative articles and bylaws.

CoLR requirements have long been effective in enabling isolated or otherwise unprofitable communities and customers to be connected to the public network when it was not economically reasonable and prudent for privately-owned, profit-seeking carriers to serve them. Whereas CoLR requirements increase the costs of carriers far more than any offsetting revenues from the affected customers, this deficit was traditionally made up by settlements and universal service support that recognized the benefits of CoLR in extending universal service.

At least some industry participants oppose the continuation or extension of CoLR obligations as the PSTN evolves into an IP or all-IP network. For example, AT&T appears to want to eliminate most CoLR obligations, or at least to limit them to narrow circumstances where they are closely tied to offsetting high-cost support (AT&T Petition, pp. 15-18). It further appears that AT&T's proposed $6 billion wireline IP investment proposal contemplates little or

no additional wireline IP deployment in its rural service areas, and that such rural service areas may receive additional IP broadband services only (if at all) in connection with its simultaneously proposed $8 billion wireless network initiative (*Id.*, p. 9).

WTA agrees with AT&T that there has been, and must continue to be, a close relationship between CoLR obligations and universal service support. Otherwise, increased costs from unfunded mandates will put large carriers like AT&T at serious competitive disadvantage in their urban service areas and their capital markets, and will put smaller carriers like WTA members out of business. However, WTA differs from AT&T in that it supports the continuation of both CoLR obligations and sufficient associated universal service support in an IP world. If broadband brings even a significant portion of the potential economic, social and governmental benefits claimed for it, the overriding goal of both government and the telecommunications industry should be to provide quality and affordable access to broadband services to as many Americans as possible, including those in high-cost rural and insular areas.

D. Universal Service Support Issues

One critical question regarding federal universal service support in an IP or all-IP world is how and to whom the Commission will distribute it. Will the Commission define a set of broadband, IP and/or Internet access services as supported telecommunications services pursuant to Section 254(c) of the Communications Act? Or will the Commission be able to convince Congress to change the Act to permit it to distribute universal service support for a set of services that are not telecommunications services, and, if so, what set or category of non-telecommunications services will the Commission ask Congress to add to the list of services that may be supported? Will universal service support be distributed solely to eligible

telecommunications carriers ("ETCs")? Or will the Commission prevail upon Congress to change Section 214(e) of the Act to authorize distribution of universal service support to entities other than ETCs, and how will the Commission recommend that Congress define and limit the list of potential non-ETC recipients?

What actions will the Commission take to adapt its Low Income mechanisms to an "all IP" network? How will such changes impact USF budgets and contribution mechanisms?

WTA members and other RLECs have long worked hard to provide quality and affordable services to as many as possible of the households and businesses in their rural service areas. The key requirement for universal service as the network evolves from TDM to IP is sufficient and predictable federal support so that RLECs can obtain the financing and revenues necessary to upgrade, operate, and maintain their rural networks as broadband capacity demands increase. In a perfect world, RLECs would be able to generate most or all of the revenues they need to repay loans and run their operations from just, reasonable and affordable rates charged to the businesses, households and other service providers that use their networks. Unfortunately, in the world in which RLECs must operate, that is simply not possible, and universal service and intercarrier compensation revenue streams have been required to enable RLECs to provide their rural customers with the affordable voice and data services they need to communicate with the rest of the world.

At the present time, the need for sufficient and predictable universal service support is becoming increasingly paramount as broadband capacity demands continue to increase and the intercarrier compensation revenue stream is declining significantly and will ultimately disappear in whole or major part. Whereas some RLECs need to make additional investments to upgrade their networks to meet the current FCC standard of 4 Mbps downstream/1 Mbps upstream, the

fact is that bandwidth demands and network upgrade requirements are going to increase well above this level as rural customers use more and more of the IP applications that are being developed and offered in the marketplace. As the long-standing RLEC revenue streams are reduced from three to two, universal service revenues are going to be more and more critical if RLECs are to continue to meet the service needs of their rural customers without being forced to increase their rates to unaffordable levels.

In addition to requiring substantial new investment in network upgrades to increase broadband capacity, the evolution to an IP network will also significantly increase the middle mile transit needs and costs of RLECs and will require universal service support to assist with these costs if rural IP service rates are to remain affordable. Many western RLECs require middle mile transit services from larger carriers over routes extending as much as 50-to-100 miles or so to the nearest Internet connection point. The long distances involved already produce well above-average middle mile transit costs for many western RLECs, and these middle mile costs are expected to become more and more onerous as IP voice and data traffic increases. In addition to monitoring access, capacity and rates with respect to these middle mile transit services, the Commission needs to develop a middle mile universal service support mechanism for RLECs as well as price cap carriers, so that RLECs can pay for the above-average costs of middle mile transit without saddling their rural customers with unaffordable IP service rates.

Finally, another aspect of IP evolution affecting universal service is naked DSL. At the present time, RLECs receive universal service support for DSL lines over which they provide TDM voice service, but lose support for such DSL lines if the customer terminates its TDM voice service and subscribes instead to IP voice service over the broadband portion of the DSL line from another service provider. In order to correct this anomaly and to further encourage the

ongoing evolution toward an IP network, the Commission should revise its rules to permit continued support for DSL lines that become naked DSL lines due to customer terminations of their TDM voice services and purchase of IP voice services.[2]

E. Continuing Regulatory and Reporting Issues

WTA agrees with NTCA and others that the Commission needs to review various rules as the network continues to evolve from TDM to IP, and current measures such as minutes of use ("MOU") are increasingly superseded by packets. WTA expects to work with other trade associations and interested parties to develop specific proposals in this area.

More generally, WTA believes that regulatory obligations and costs can and should be reduced in an IP world, particularly when broadband capacity and infrastructure investment requirements are increasing and universal service and intercarrier compensation revenue streams are budgeted, limited and/or decreasing. While WTA recognizes that acceptance of universal service support entails service and reporting obligations, the Commission should endeavor to minimize the regulatory and reporting costs of USF recipients as much as practicable to ensure that as much support as possible goes directly to the improvement of facilities and services.

For example, the semi-annual Local Competition and Broadband Report (FCC Form 477) may provide the Commission with some useful information, but this requires a very substantial commitment of time and expense from reporting entities twice each year. The Commission itself has estimated that the average time needed to complete and file a state-specific report is 65 hours, and that the average time needed to make a semi-annual response consisting of one or more state-specific reports is 289 hours. During a period when additional investment is urgently

[2] For the most part, RLECs have elected Title II common carrier regulation for their DSL lines and services, and have not changed this election when such DSL lines become naked DSL lines.

needed to extend and expand broadband facilities and offer new IP services, would it not make sense for the Commission to reduce its Form 477 reporting requirements and costs significantly in order to free up more resources for such investments? Why, for example, would not a bi-annual report suffice rather than semi-annual reports? Why is detailed Census block data required when neither wireline nor wireless carriers define their service areas in terms of Census blocks? What FCC Form 477 data is absolutely necessary for the Commission to perform its regulatory obligations, and what information requirements can be eliminated or reduced without adversely affecting that mission to a significant degree?

In addition, increased competition between telephone, wireless, cable, application providers and other entities in an IP world will require the Commission to adjust regulation toward the goal of a level playing field. For example, where a myriad of VoIP service providers can offer competitive voice services as an application on IP networks, what basis will there be for continuing to regulate RLECs and other incumbent local exchange carriers ("ILECs") as dominant carriers and for continuing to require them to provide equal access to long distance services?

In an IP world, what carriers and service providers will be required to provide local number portability ("LNP")? If VoIP service providers can obtain LNP from local exchange carriers ("LECs"), will LECs be able to obtain or reclaim numbers when they take customers from VoIP service providers? How will the Commission enforce LNP obligations against VoIP providers if they are not LECs or telecommunications carriers? To what extent, if any, will adjustments need to be made to integrate traditional telephone numbers and IP addresses?

Will all competing carriers and service providers in an IP world be required to comply with Customer Proprietary Network Information ("CPNI") safeguarding, notice and certification

requirements, and/or Communications Assistance for Law Enforcement Act ("CALEA") requirements? How should these and other regulatory requirements be reduced for traditional common carriers, and/or increased for non-common carriers, in order to establish and maintain level playing fields for competing service providers?

Finally, as a general matter, should the Commission regulate all carriers and service providers competing on an IP or all-IP network: (a) wholly under Title I; (b) wholly under Title II; or (c) allow each carrier and service provider to elect regulation under Title I or Title II? In the latter instance, should the Commission adjust the relative benefits and obligations of Title I and Title II regulation so that they provide as level of a competitive playing field as practicable?

VI
Conclusion

WTA recognizes that TDM-to-IP evolution is well under way, and reminds the Commission that its members and other RLECs have been engaged in substantial "trial runs" of the deployment of IP-compatible facilities and IP services. It is ready, willing and able to work with the Commission to address technical and regulatory issues as this evolution proceeds.

WTA is not opposed to more formal technical "trial runs" under certain conditions. These include: (a) technical feasibility, without loss of ability by customers to communicate with locations in TDM areas; (b) compliance with customer notice, Section 214, state service quality and CoLR rules, and other applicable legal and regulatory requirements; and (c) participation by a small, readily monitored and diversified group of carriers of different types and sizes from all parts of the country. What the Commission needs to avoid is a large number of "trial runs" dominated by a single carrier or small group of carriers that are not representative of the overall population of carriers and service areas and that may pressure the Commission to make their

experimental TDM-to-IP conversions *fait accompli* even if the findings of certain "trial runs" indicate substantial adverse service, quality or consumer impacts that require further study, longer transition periods or other adjustments.

To the extent that regulatory changes are ultimately necessary or feasible, they are not amenable to "trial runs," but rather will need to be considered, discussed and analyzed by a broad spectrum of interested parties on an industry-wide basis. Potential areas of such regulatory review as TDM-to-IP evolution proceeds include interconnection, intercarrier compensation, CoLR obligations, universal service support, and continuing regulatory and reporting obligations.

Respectfully submitted,
WESTERN TELECOMMUNICATIONS ALLIANCE

By:_____
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