January 16, 2020

***Ex Parte* Notice**

Ms. Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C., 20554

RE: Advanced Methods to Target and Eliminate Unlawful Robocalls, CG Docket No. 17-59
Call Authentication Trust Anchor, WC Docket No. 17-97
Developing a Unified Intercarrier Compensation Regime, CC Docket No. 01-92
Connect America Fund, WC Docket No. 10-90

Dear Ms. Dortch:

On Tuesday, January 14, 2020, the undersigned and Brian Ford on behalf of NTCA–The Rural Broadband Association ("NTCA"),[1] met with the following Federal Communications Commission ("Commission") staff: Terri Natoli, Associate Bureau Chief, Wireline Competition Bureau ("WCB"); Daniel Kahn, Associate Bureau Chief, WCB; Gil Strobel, Chief, Pricing Policy Division; Pamela Arluk, Chief, Competition Policy Division; Edward Krachmer, Deputy Division Chief, Competition Policy Division; Victoria Goldberg, Deputy Division Chief, Pricing Policy Division; Heather Hendrickson, Deputy Division Chief, Competition Policy Division; Matthew Collins, Assistant Division Chief, Competition Policy Division; Albert Lewis, Special Counsel, Pricing Policy Division; Allison Baker, Economic Advisor, WCB; Kenneth Carlberg, Chief Technologist, Public Safety & Homeland Security Bureau; Connor (CJ) Ferraro, WCB; Mason Shefa, WCB; and John Visclosky, WCB. The parties discussed how the Commission can address Internet Protocol ("IP") interconnection issues and thereby facilitate full industry participation in the SHAKEN/STIR caller-ID "spoofing" mitigation framework both to protect rural consumers from unwanted calls and prevent a "reverse rural call completion problem" that would cause serious harm in rural America as an unintended consequence of call authentication efforts.

A primary barrier to industrywide implementation of SHAKEN/STIR is the lack of basic "rules of the road" for IP interconnection for voice traffic.

NTCA began the meeting by reiterating the desire of rural local exchange carriers ("RLECs") to participate in call authentication efforts, whether directly through SHAKEN/STIR (where IP-enabled) or via other solutions still being examined by the industry (where TDM-based networks remain in place). Indeed, NTCA noted that a recent survey indicated that 93 percent

[1] NTCA represents approximately 850 independent, community-based telecommunications companies and cooperatives and more than 400 other firms that support or are themselves engaged in the provision of communications services in the most rural portions of America.

of its members have IP-enabled switches within their networks,[2] meaning that many RLECs have the capability to implement SHAKEN/STIR within at least parts, if not all, of those networks. NTCA also discussed industry efforts to develop call authentication capabilities in those instances where TDM switching still resides within networks, its members' interest in such capabilities where needed, and the barriers to development and use of such alternatives.

NTCA highlighted, however, that even substantial IP-enabled network deployment by smaller rural carriers is insufficient standing alone to implement the SHAKEN/STIR framework. Even where RLEC networks are IP-enabled, the question of how they interconnect with other voice providers for the passage and exchange of SHAKEN/STIR certificates is a significant gating barrier. Certainly, other challenges must be overcome as well – such as the ability to find "ready-to-install" authentication solutions from vendors, as well as the fact that such solutions even once available could come at a cost difficult for many small carriers to absorb.[3] But, NTCA asserted that the absence of basic "rules of the road" that provide all parties a clear path and clear incentives to enter into IP interconnection agreements for the exchange of voice traffic stands as *the primary barrier* to SHAKEN/STIR implementation for wide swaths of rural America.

This concern arises because SHAKEN/STIR depends upon the hand-off of calls in IP format between every network along the call path – the authenticated caller-ID information generated by the originating carrier will not transfer otherwise. In practical terms, this means that even where NTCA members and similarly situated operators are ready within their own networks to participate in the SHAKEN/STIR framework, they will be sending "SIP identity headers to nowhere" because authentication information will dissipate once the voice traffic leaves their IP-enabled networks. In short, even the most advanced IP-enabled network will be foreclosed from participation in the SHAKEN/STIR framework if it cannot obtain IP interconnection with other IP-enabled networks.

Referencing the attached diagrams, NTCA noted that, even where voice traffic is in IP format on their own networks, many RLECs today exchange traffic with upstream providers via media gateways that convert such traffic to TDM. Small rural carriers have no control over upstream carriers' relative technical capabilities or their unwillingness to exchange voice traffic in IP. Indeed, NTCA members frequently report the continued presence and use of TDM facilities (such as tandem switches or interexchange carrier points of presence) within upstream provider networks as a barrier to the exchange of voice traffic in IP format.

In addition to technical considerations in the form of the lingering presence of TDM tandem switches and TDM trunking in upstream networks, however, even where IP interconnection would be technically possible, economic considerations present a substantial barrier to the migration to IP interconnection in rural areas particularly. Today, RLECs typically exchange

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[2] Broadband/Internet Availability Survey Report, NTCA–The Rural Broadband Association, Dec. 2019, p. 9 available at: https://www.ntca.org/sites/default/files/documents/2019-12/2019%20Broadband %20Survey %20Report.pdf.

[3] *See Ex Parte* Letter from Michael R. Romano, Sr. Vice President, NTCA to Marlene H. Dortch, Secretary, Commission, CC Docket No. 01-92, WC Docket No. 18-155 (fil. Jul. 18, 2019).

traffic either at their end office switches (in the case of direct trunking) or at agreed-upon meet points with other carriers. Putting aside any intercarrier compensation or access charge issues, this means that, today, RLECs serving small, rural customer bases are financially responsible for outbound voice calls only to the point of their originating switch or, at most, for transport of such calls to a meet-point boundary. But, in an IP-enabled world where there are no "rules of the road," NTCA observed that "all bets are off" as to where and how interconnection will be achieved. In fact, precisely because there are no "rules of the road" for what will happen once existing TDM interconnection arrangements are scrapped, it is all but certain that larger providers will seek to shift all transport costs to these small carriers, requiring them to deliver calls to distant points of interconnection that may be several states and hundreds or even thousands miles away from the rural area where such calls originate. If there is any doubt as to the desire for or likelihood of such a result, one need only look at the prior filings of such providers advocating for precisely such a result – these operators have loudly and repeatedly flagged to the Commission that this is the very objective of such a transition from their perspective.[4]

Should such practices extend to the exchange of voice traffic in an all-IP world, NTCA highlighted that this would fundamentally remake the economics of interconnection for the exchange of voice traffic – and put universal service goals at risk. *To be clear, for the first time ever, the costs of transport for voice traffic to and from isolated rural service areas would be foisted fully and solely onto small rural customer bases without any additional universal service support to cover such costs*. Such a result would be particularly discordant in the wake of the Commission's recent elimination of the notorious and noxious "rate floor" policy due to concerns about "needless rate increases" for local services for rural Americans.[5] Indeed, for rural providers, these costs of transporting every voice call to distant network edges could rapidly dwarf any other costs involved in SHAKEN/STIR implementation and thus undermine the affordability of voice service rates in rural America. Such costs might be *somewhat* minimized via the alternative use of only "best efforts" transport of voice calls, ironically forcing RLECs to decide whether rural consumers should have *affordable* or *quality* voice service – but not both. Such a result would be hard to square with the broader public policy goals of universal service.

To address this significant barrier to SHAKEN/STIR implementation, the Commission should promote IP interconnection by adopting a simple default rule that would maintain existing interconnection points and transport responsibilities for voice calls between operators, regardless of whether a call is exchanged in TDM or IP.

It is essential that the Commission move with all due speed, particularly in the wake of the enactment of the TRACED Act, to take all steps it can to foster universal participation in the

[4] *See* AT&T, *ex parte* letter, GN Docket No. 13-5, WC Docket No. 13-97, WC Docket No. 10-90 (fil. Jan. 24, 2014) (asserting that "IP interconnection will take place on a nationwide basis, and at a relatively small number of places"); Sprint, *ex parte* letter, WC Docket Nos. 10-90, 07-135, 05-337,03-109; CC Docket Nos. 01-92, 96-45; and GN Docket No. 09-51 (fil. Oct. 3, 2011) (arguing for "the more efficient regional interconnection arrangements typically used for non-voice IP traffic").

[5] *Connect America Fund*, WC Docket No. 10-90, Report and Order, FCC 19-32 (rel. Apr. 15, 2019), ¶ 1.

SHAKEN/STIR framework specifically and to promote implementation of alternative authentication measures where needed due to the continued presence of TDM facilities. In the case of this interconnection barrier to SHAKEN/STIR implementation where IP-enabled networks are in place, there is fortunately a rather simple fix – the default preservation of the existing transport and interconnection responsibilities used to exchange voice calls today in an IP environment. Simply adopting a default rule that retains existing interconnection points and transport responsibilities between RLECs and those parties with whom they exchange IP traffic would represent a surgical means of hastening SHAKEN/STIR implementation for the benefit of all consumers, in rural and urban America alike.

NTCA explained that the benefits of such an approach are clear. First and foremost, it would remove disincentives to migrate to IP interconnection, because there would be no change, disruption, or uncertainty associated with doing so. Instead, all networks would simply bear the same well-known and well-understood responsibilities to meet at the same places for the exchange of voice calls as they have in the past (in the absence of mutual agreement to change them). This should expedite the implementation of IP interconnection and the ensuing implementation of SHAKEN/STIR across all IP-enabled networks. Moreover, many parties have long touted the "efficiencies" inherent in IP routing of voice traffic, and presuming these are real, this approach would simply ensure that these "efficiencies" are shared among all networks. By contrast, if existing interconnection arrangements are not preserved as underlying technology migrates from TDM to IP, as discussed above, any "efficiencies" gained in such a transition will accrue entirely and exclusively to the benefit of larger providers who have long signaled their desire to "pull back" to regional or national interconnection points, leaving smaller rural operators to pay for "voice transit" (*i.e.*, transport) to reach those distant points of interconnection. Put another way, even if the *overall* costs of routing calls may be reduced by the migration to IP routing technology, RLECs' share of those transit/transport costs will undoubtedly rise without targeted "rules of the road" surrounding network edges – and the result would be RLECs needing to recover those increased costs from a small rural customer base in defiance of universal service objectives.

***There is direct precedent for adoption of a simple default rule to maintain existing interconnection arrangements and transport responsibilities in the face of regulatory changes or mandates*.**

In the meeting, NTCA noted that there is precedent for the adoption of a simple IP interconnection default rule such as that proposed above. Specifically, in 2011, the Commission adopted a "rural transport rule" that maintained existing interconnection points and financial responsibility for transport thereto as all access charges for intraMTA traffic moved rapidly to bill-and-keep.[6] That provision was enacted under circumstances similar to that which exist here: the Commission recognized that changes being enacted to address

[6] *Connect America Fund*, WC Docket No. 10-90, et al., Report and Order and Further Notice of Proposed Rulemaking, FCC 11-161 (rel. Nov. 18, 2011) ("USF/ICC Transformation Order"), ¶¶ 998-999 (adopting a "rural transport rule" to ensure that the obligations of RLECs to carry originating non-access traffic do not extend beyond their service area boundaries, recognizing that absent such a rule, RLECs could be forced to incur unrecoverable transport costs).

broader systemic policy issues risked shifting transport charges directly onto rural carriers and the customers they serve. The Commission was rightly concerned that its attempt to achieve a broader policy goal could harm a certain class of consumers, and it took a narrow step – maintaining existing interconnection responsibilities as a default rule – to ensure that this policy could move forward without unnecessary disruption to traffic exchange or harm to rural consumers.

Here, a similar provision, limited in scope to the exchange of voice traffic between RLECs and other operators via IP interconnection, would promote the implementation of SHAKEN/STIR in rural areas while ensuring no disruption in the exchange of voice calls or the foisting of costs onto rural consumers in defiance of universal service objectives. It is important to note as well that this kind of provision would result in *no harm whatsoever to any other party*. For the other parties to these interconnection arrangements, this policy would do nothing more than maintain the status quo *ex ante* associated with them – and, if IP services are truly as efficient and cost-reductive as these operators claim, then the costs of interconnection for *all parties* should decline even if the existing points of interconnection (and relative financial responsibilities to meet at these points) are maintained. NTCA therefore submitted that the Commission's adoption of such a rule would be pro-consumer *both* by helping to enable implementation of SHAKEN/STIR in rural areas and combat spoofing *and* by preserving universal service through an assurance that all of the costs of interconnection for voice traffic will not be transferred and foisted onto the backs of rural consumers.

There is serious risk of a "reverse rural call completion problem" if the Commission does not quickly address these IP interconnection issues and develop strategies for dealing with authentication where networks are not IP-enabled.

Nearly a decade ago, NTCA first brought to the Commission's attention concerns that calls from urban consumers were failing to complete to rural areas.[7] Over the winding course of the past decade, through a mix of enforcement efforts and new and revised rules, the Commission pursued a variety of measures aimed at giving operators proper incentives to complete calls destined for rural areas and punishing those that failed to do so.

A decade later, the implementation of call authentication technologies offers great promise to combat the scourge of robocalling and restore yet another measure of reliability to voice services. But if not implemented thoughtfully and holistically, NTCA noted that this great promise could be undermined by a new concern – one that NTCA referred to in the meeting as a "reverse rural call completion problem." Specifically, if calls from rural consumers appear unauthenticated when reaching urban areas either due to a lack of IP interconnection between otherwise IP-enabled networks or because there are no alternatives in place for authenticating calls that originate and/or terminate on TDM networks, there is serious risk that legitimate calls from rural customers will go unanswered by urban consumers because they look "untrustworthy." Moreover, it is quite possible that ill-intentioned spoofers will scramble to

[7] *See Ex Parte* Letter from Michael R. Romano, Sr. Vice President, NTCA to Marlene H. Dortch, Secretary, Commission, WC Docket 07-135, CC Docket No. 01-92, WC Docket No. 11-39 (fil. Mar. 11, 2011).

migrate to rural telephone numbers, further undermining trust in calls from rural markets and leading to an even greater number of calls failing to be answered by urban consumers. Finally, the increased use of call blocking applications could result in legitimate calls from rural areas being blocked altogether simply because they cannot be authenticated due to the barriers highlighted above.

In other words, NTCA highlighted the irony that incomplete implementation of call authentication – without a clear plan for addressing IP interconnection and TDM authentication alternatives – could result in rural subscribers finding their calls blocked through no fault of their own. Such a "reverse rural call completion problem" would of course be antithetical to the concept of universal service and is clearly not the intended effect of authentication efforts. The adoption of the simple default rule described herein for IP interconnection, paired with increased efforts to address authentication alternatives on TDM networks, is essential to ensure this does not come to pass.

Thank you for your attention to this correspondence. Pursuant to Section 1.1206 of the Commission's rules, a copy of this letter is being filed via ECFS.

Sincerely,
/s/ *Michael Romano*
Michael Romano
Senior Vice President – Industry Affairs and Business Development
NTCA-The Rural Broadband Association

cc: Terri Natoli
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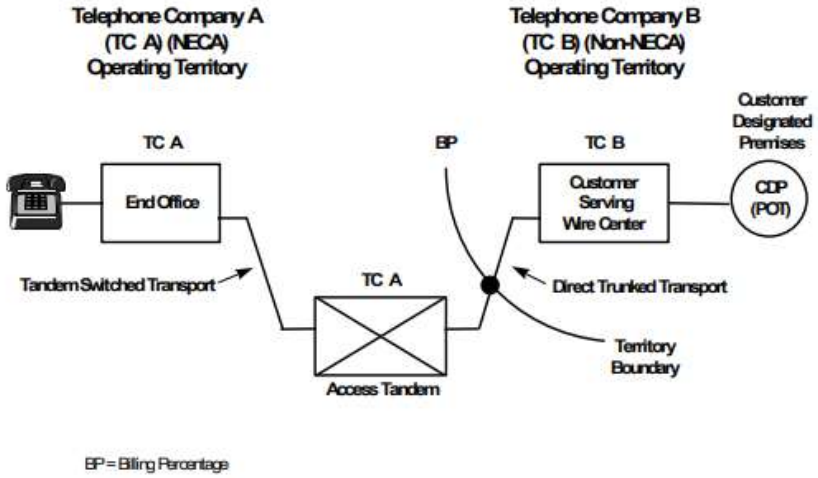
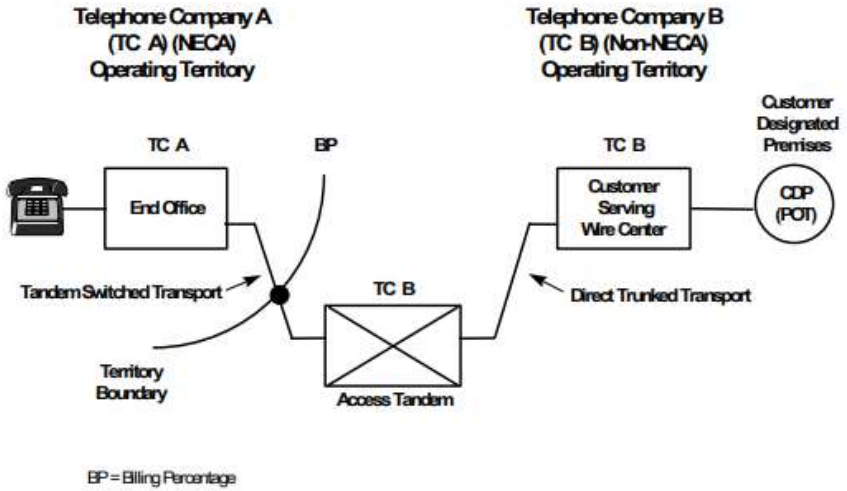
Attachment: Interconnection diagrams



Source: NECA Tariff No. 5



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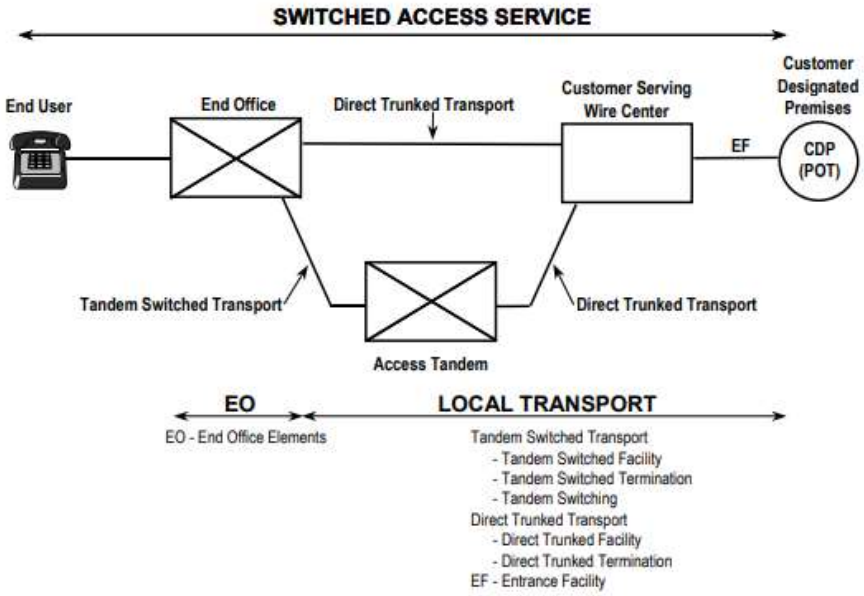
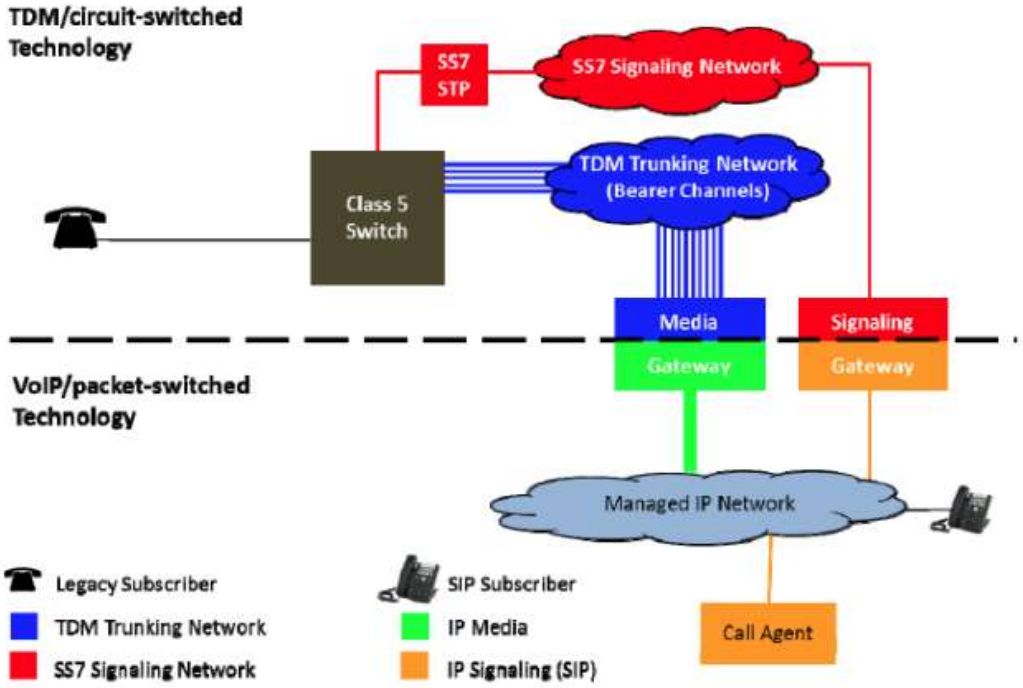


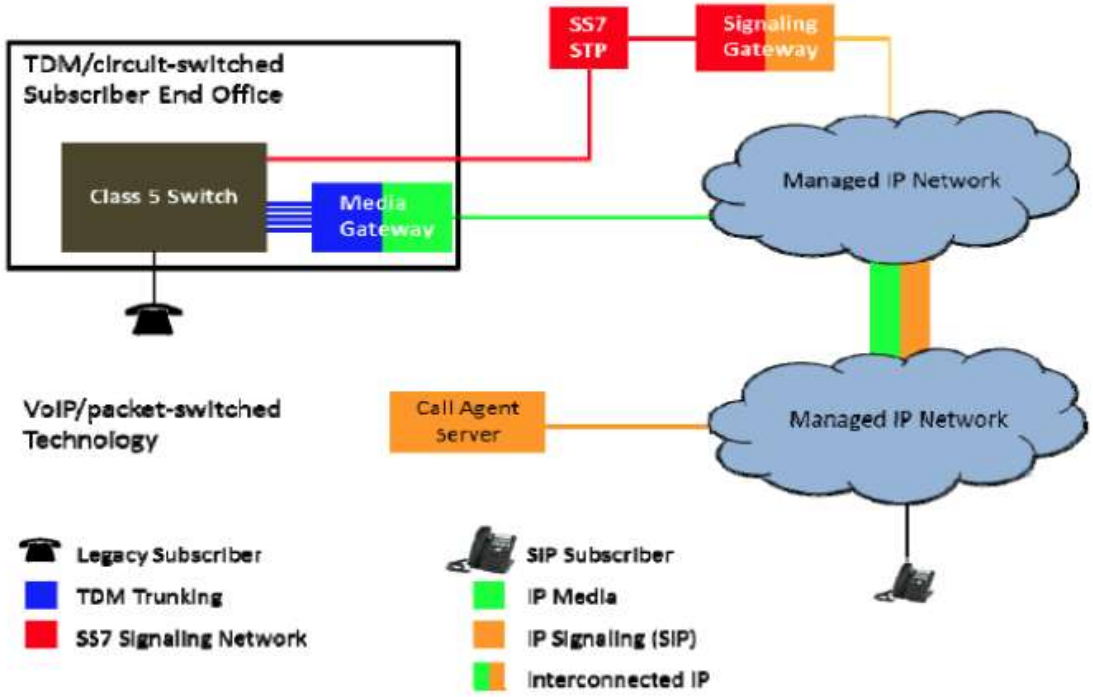
Source: NECA Tariff No. 5

Figure 1: VoIP-to-TDM Interconnection



Source: Gillan and Malfara, *The Transition to an All-IP Network: A Primer on the Architectural Components of IP Interconnection*, National Regulatory Research Institute (May 2012).

Figure 2: IP-to-IP Interconnection with VoIP/TDM End Point



Source: Gillan and Malfara, *The Transition to an All-IP Network: A Primer on the Architectural Components of IP Interconnection*, National Regulatory Research Institute (May 2012).

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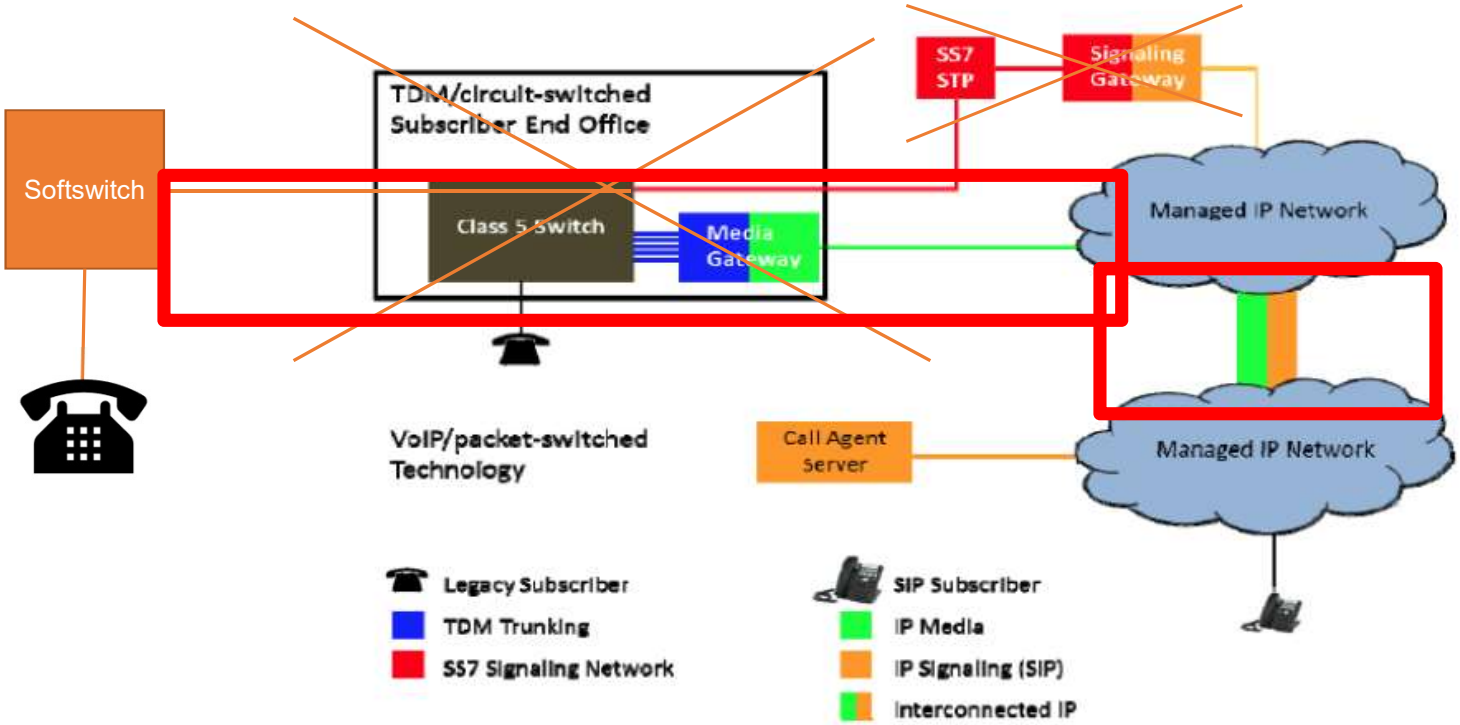

Source: Gillan and Malfara, *The Transition to an All-IP Network: A Primer on the Architectural Components of IP Interconnection*, National Regulatory Research Institute (May 2012).