

provide wireless services have faced an increase of robocall complaints over the same time frame.

A coordinated and comprehensive response is clearly needed and welcomed by small carriers and their customers alike. The frameworks proposed by the ATIS/SIP Forum effort (Signature-based Handling of Asserted information using toKENs, or SHAKEN, and the Secure Telephone Identify Revisited framework crafted by the Internet Engineering Task Force, collectively known as “SHAKEN/STIR”)⁶ appear to be developing into viable and reasonable long-term solutions for Internet Protocol (“IP”) based voice communications. However, as the NOI notes,⁷ legacy circuit-switched methods and protocols, notably Time Division Multiplexing (“TDM”) and Signaling System 7 (“SS7”) will also be in use for the foreseeable future. The continued development, implementation, governance and administration of SHAKEN/STIR should not result in requirements for equipment upgrades outside of normal business needs, unfunded mandates, or increased costs for rural telecommunications providers.

II. THE COMMISSION SHOULD REMOVE BARRIERS TO DEPLOYMENT OF BROADBAND TECHNOLOGIES THAT ARE COMPATIBLE WITH SHAKEN/STIR, AND SHOULD NOT IMPOSE NEW REQUIREMENTS AT THIS TIME

The NOI asks if there are existing “regulations, market failures, or other factors that prevent or discourage stakeholders from developing, implementing, or deploying authentication frameworks,” and if so, “what steps could the Commission take to remove or mitigate any such barriers?”⁸ The NOI also requests comment on the suitable role of the Commission, if any, to promote the adoption and implementation of an authentication framework such as

⁶ *Id.*, ¶¶ 5-8.

⁷ *Id.*, ¶¶ 38-39.

⁸ *Id.*, ¶ 16.

SHAKEN/STIR.⁹ As explained further below, the Commission could promote adoption and implementation of an authentication framework by removing regulatory barriers to investment in the infrastructure that is needed to provide broadband services that are compatible with SIP-based services and SHAKEN/STIR.

As the NOI notes elsewhere, voice communications are transported via “a myriad [of] platforms” including “legacy, circuit switched Time Division Multiplexing (“TDM”)/[Signaling System 7 (“SS7”)] networks, packet switched IP/SIP networks, or a combination thereof.”¹⁰ The NOI further notes that SHAKEN/STIR applies to SIP-based, but not SS7 or other legacy-based, systems.¹¹ In the low-density, high-cost areas served by NTCA members, it is generally more expensive and difficult to deploy networks of all kinds, including but not limited to IP-enabled deployments that are compatible with SHAKEN/STIR.

While NTCA members have made extensive efforts to deploy broadband and new technologies that rely upon it where feasible,¹² regulatory constraints unfortunately impede RLECs’ ability to invest in technology and broadband infrastructure that are needed to implement SHAKEN/STIR. Specifically, it has become increasingly clear that caps currently constraining the Universal Service Fund budget render the Fund insufficient to permit many rural consumers to receive the benefits of broadband or, where available, to purchase robust

⁹ *Id.*, ¶¶ 14-17.

¹⁰ *Id.*, ¶ 38.

¹¹ *Id.*, ¶¶ 38-39. NTCA understands that efforts are underway to provide at least some additional information to end-users served via legacy systems through Caller ID functions, such as a “Suspicious Call” notation or similar alert. While a step in the right direction, the inherent limits of legacy systems appear to prevent them from enjoying the full functionality of SHAKEN/STIR or similar authentication methods.

¹² *See, e.g.*, NTCA 2015 Broadband/Internet Availability Survey Report (July 2016) (finding that 85 percent of consumers served by 131 RLEC respondents could obtain speeds of 10Mbps or greater downstream, with 71 percent able to receive speeds of 25 Mbps or greater downstream (available at: <https://www.ntca.org/images/stories/Documents/Advocacy/SurveyReports/2015ntcabroadbandsurveyreport.pdf>.)

standalone broadband of the kind that many urban Americans take for granted at reasonably comparable rates.¹³ As NTCA recently noted:

Because of the lack of sufficient funding for the Commission's cost model, 71,000 rural locations will receive lower-speed broadband than the model design would have yielded, and nearly 50,000 may see no broadband investment at all. Moreover, NTCA members indicate that the USF budget shortfall of \$173 million over the next 12 months for cost-based USF recovery will severely harm rural American consumers and businesses in the form of higher prices, lower speeds, and reduced investment by the smaller RLECs dedicated to serving them. Due to the impacts of the budget control imposed on cost-based USF and the uncertainty of changes to that mechanism in future, 183 NTCA member RLECs have indicated that they will reduce their broadband investments over the next 12 months by nearly \$950,000, on average, and must still charge rates for standalone broadband that are on average far in excess of those paid by urban consumers.¹⁴

Clearly, the insufficiency of the Universal Service Fund will continue to constrain the ability of RLECs to deploy broadband-capable networks that are necessary to carry SIP-based communications; indeed, the budget control all but compels limited, ratcheted advancement of broadband-capable networks in many rural areas. This will in turn impede the ability of RLECs to implement fully call spoofing countermeasures such as SHAKEN/STIR. The effectiveness of SHAKEN/STIR, or any anti-spoofing method that is not compatible with legacy voice systems, will remain compromised and limited as long as the ability of rural carriers to invest in broadband-capable infrastructure is artificially and arbitrarily constrained.

Aside from the need to remove regulatory constraints on investments in broadband-capable infrastructure, the Commission is currently taking appropriate steps, such as the issuance of the extant NOI, to encourage standards bodies and industry groups to continue to pursue collaborative efforts that can help establish an authentication regime. Much of the Commission's

¹³ See Petition for Reconsideration and/or Clarification of NTCA, WC Docket No. 10-90, *et al.* (filed May 25, 2016).

¹⁴ *Ex Parte* Letter from Michael R. Romano, Sr. Vice President – Industry Affairs & Business Development, NTCA, to Marlene H. Dortch, Secretary, Commission, WC Docket No. 06-122 (fil. July 31, 2017).

role lies in encouraging and helping to coordinate industry efforts to leverage technological advancements and marketplace evolutions to achieve solutions. The Commission should avoid steps, such as requiring the deployment of specific technologies by voice communications carriers, that would amount to unfunded mandates, or cause carriers to expend resources for compliance purposes that would not otherwise be spent in the normal course of business.

III. GOVERNANCE AND ADMINISTRATIVE SOLUTIONS SHOULD, IN GENERAL, BE BASED UPON THE CURRENT NUMBERING REGIME, AND ANY RESULTING COSTS SHOULD BE FULLY RECOVERABLE

The NOI asks a number of questions regarding prospective certificate management, governance, and administration issues regarding the SHAKEN/STIR proposal.¹⁵ It specifically asks if the current North American Portability Management LLC (“NAPM”), North American Numbering Plan Administrator (“NANPA”) or Pooling Administrator (“PA”) might provide various administrative and/or certifying functions.¹⁶ In general, while not offering specific recommendations at this time, NTCA is favorably inclined to leverage current numbering conventions and bodies, which have proven track records and experience, as models upon which to base a call authentication regime. The NOI also notes that the Commission’s advisory North American Numbering Council (“NANC”), of which NTCA is a longtime member, has historically played a role in numbering administration matters.¹⁷ NTCA recommends that the Commission utilize the expertise of the NANC and its various workgroups for advice and guidance with regard to call authorization.

Finally, the NOI requests comments regarding the costs and funding of implementing and administering a call authentication regime.¹⁸ While the costs of implementing and administering

¹⁵ NOI, ¶¶ 18-27.

¹⁶ *Id.*, ¶¶ 20-24; ¶ 29.

¹⁷ *Id.*, ¶ 27.

¹⁸ *Id.*, ¶¶ 46-47.

number portability capabilities may offer a rough baseline, even high-level estimates are elusive, at least until a number of the specific questions posed by the NOI are narrowed down. However, it is clear that rural carriers operating in high-cost areas are already impeded by budget caps as discussed *supra*, and the imposition of any additional costs will only further constrain their ability to deploy and maintain broadband services that are compatible with SHAKEN/STIR (and offer many other benefits, of course). Any resulting costs for rural carriers that are not strictly *de minimis* must be accommodated by some form(s) of viable cost recovery mechanism(s). These should be developed and considered from the outset as plans for a call authentication regime proceed.

IV. CONCLUSION

Current universal service budget caps impede the ability of small rural carriers to update network infrastructure to SIP-based systems that would be compatible with the SHAKEN/STIR call authentication proposal. The Commission should remove these constraints to prevent rural consumers from being left behind as technology advances. Current numbering bodies and practices may serve as an effective model for approached regarding the governance, certification, and administration of any eventual call authentication method, including SHAKEN/STIR, and the Commission should continue to solicit the advice of the North American Numbering Council. Implementation and ongoing administrative costs should be fully factored into any call

authentication solution, and full cost recovery must be available for small carriers serving high-cost rural areas.

Respectfully submitted,



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