

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

In the Matter of
Call Authentication Trust Anchor
UNITED STATES CELLULAR CORPORATION
VERIZON COMMUNICATIONS, INC.
Petitions for Extension pursuant to section
64.6304(e) of the Commission’s rules.
WC Docket No. 17-97

ORDER

Adopted: March 30, 2021

Released: March 30, 2021

By the Chief, Wireline Competition Bureau:

I. INTRODUCTION

1. In this order, we deny petitions filed by United States Cellular Corporation (U.S. Cellular) and Verizon Communications, Inc. (Verizon), for extensions of the deadline to complete implementation of the STIR/SHAKEN caller ID authentication framework on the internet protocol (IP) portions of their networks by June 30, 2021, as required by section 64.6301 of the Commission’s rules. Petitioners claim they face difficulties in implementing caller ID authentication technology as to their IP networks and seek partial or complete extensions pursuant to the process established by the Commission. As set forth below, we find that the petitioners have failed to meet the high standard of “undue hardship” necessary under the TRACED Act to justify allowing a provider to delay compliance with the requirements to transmit authenticated caller ID information to customers.

II. BACKGROUND

2. To address the issue of illegal caller ID spoofing, technologists from the Internet Engineering Task Force (IETF) and the Alliance for Telecommunications Industry Solutions (ATIS)

1 Motion of United States Cellular Corporation for Extension of Time, WC Docket No. 17-97 (filed Nov. 23, 2020) (U.S. Cellular Petition); Verizon Petition for Declaratory Ruling or, in the Alternative, a Limited Extension of the STIR/SHAKEN Implementation Deadline, WC Docket No. 17-97 (filed Nov. 20, 2020) (Verizon Petition). U.S. Cellular also seeks an extension regarding its non-IP network. U.S. Cellular Petition at 3. The Commission directed the Wireline Competition Bureau (Bureau) to issue a decision on any extension petitions filed. See Call Authentication Trust Anchor, WC Docket No. 17-97, Second Report and Order, FCC 20-136, at 65, para. 65 (Oct. 1, 2020) (Second Caller ID Authentication Report and Order).

2 47 CFR § 64.6304(e); see also Second Caller ID Authentication Report and Order, at 34, para. 65; Pallone Thune Telephone Robocall Abuse Criminal Enforcement and Deterrence Act, Pub. L. No. 116-105 (2019) (TRACED Act) § 4(b)(5)(A)(ii).

3 TRACED Act § 4(b)(5)(A)(ii).

developed standards to allow for the authentication and verification of caller ID information for calls carried over IP networks.<sup>4</sup> The result of their efforts is the STIR/SHAKEN caller ID authentication framework, which allows for the caller ID information to securely travel with the call itself throughout the entire length of the call path if all providers in the call path have implemented STIR/SHAKEN.<sup>5</sup> The STIR/SHAKEN framework relies on public key cryptography to securely transmit the information that the originating voice service provider knows about the identity of the caller and its relationship to the phone number it is using throughout the entire length of the call path, allowing the terminating voice service provider to verify the information on the other end.<sup>6</sup> The unbroken transmission of this information from the originating voice service provider, through each intermediate provider, to the terminating voice service provider is critical to creating the end-to-end chain of trust that allows a terminating provider to know it has received accurate caller ID information.<sup>7</sup> Because voice service providers transmit this information in the message used to initiate the SIP (Session Initiation Protocol) call, STIR/SHAKEN only operates in the IP portions of a provider's network; if a call is routed at any point over an interconnection point or intermediate provider's network that does not support the transmission of SIP calls, the caller ID authentication information will be lost.<sup>8</sup>

3. In 2019, Congress passed the TRACED Act, which directs the Commission to take numerous steps to promote and require implementation of caller ID authentication.<sup>9</sup> The TRACED Act directs the Commission to require voice service providers to, in the IP portions of their networks, implement STIR/SHAKEN and, in the non-IP portions of their networks, take reasonable measures to implement an effective caller ID authentication framework.<sup>10</sup> As required by the TRACED Act, the Commission mandated that voice service providers implement STIR/SHAKEN on their IP networks by June 30, 2021.<sup>11</sup> While voice service providers must apply the STIR/SHAKEN framework to calls they originate and exchange with other voice service providers and intermediate providers, they are only required to transmit calls with authenticated caller identification information to the next voice provider or intermediate provider in the call path "to the extent technically feasible."<sup>12</sup> For non-IP networks, the

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<sup>4</sup> *Second Caller ID Authentication Report and Order*, at 4, para 6.

<sup>5</sup> *Id.* More specifically, a working group of the Internet Engineering Task Force (IETF) called the Secure Telephony Identity Revisited (STIR) developed several protocols for authenticating caller ID information. *Id.* at 4, para 7. And the Alliance for Telecommunications Industry Solutions (ATIS), in conjunction with the SIP Forum, produced the Signature-based Handling of Asserted information using toKENs (SHAKEN) specification, which standardizes how the protocols produced by STIR are implemented across the industry. *Id.* at 4, para 7.

<sup>6</sup> *Second Caller ID Authentication Report and Order*, at 5, para. 8.

<sup>7</sup> *Id.*

<sup>8</sup> *Id.* at 5, para. 9.

<sup>9</sup> TRACED Act.

<sup>10</sup> TRACED Act § 4(b)(1).

<sup>11</sup> *Id.*; *Call Authentication Trust Anchor; Implementation of TRACED Act Section 6(A)—Knowledge of Customers by Entities with Access to Numbering Resources*, WC Docket Nos. 17-97, 20-67, Report and Order and Further Notice of Proposed Rulemaking, FCC 20-42, at 2, para. 3 (Mar. 31, 2020) (*First Caller ID Authentication Report and Order*). To fully implement STIR/SHAKEN a voice service provider must (i) authenticate and verify caller identification information for all SIP calls that exclusively transit its own network; (ii) authenticate caller identification information for all SIP calls it originates and that it will exchange with another voice service provider or intermediate provider and, to the extent technically feasible, transmit that call with authenticated caller identification information to the next voice service provider or intermediate provider in the call path; and (iii) verify caller identification information for all SIP calls it receives from another voice service provider or intermediate provider which it will terminate and for which the caller identification information has been authenticated. See 47 CFR § 64.6301.

<sup>12</sup> 47 CFR § 64.6301(a)(2).

Commission required voice service providers to either upgrade their non-IP network to IP and implement STIR/SHAKEN or work to develop a non-IP caller ID authentication solution.<sup>13</sup>

4. While the TRACED Act directs the Commission to establish these caller ID authentication mandates, it also created a process by which the Commission could grant extensions of the June 30, 2021 deadline for compliance. Specifically, the TRACED Act directs the Commission to assess “any burdens or barriers” to the implementation of caller ID authentication faced by voice service providers and empowers the Commission to grant extensions of the deadline “upon a public finding of undue hardship.”<sup>14</sup> The Commission may grant extensions on an individual basis or for classes of providers, and may extend for a “reasonable period of time . . . as necessary for [a] provider or class of providers . . . to participate in the implementation in order to address the identified burdens and barriers.”<sup>15</sup> After assessing the burdens and barriers faced by classes of voice service providers, the Commission granted a two-year extension to small voice service providers because they face “substantial cost” to implement STIR/SHAKEN, in some cases potentially up to “a small provider’s entire voice revenues.”<sup>16</sup> The Commission also granted an extension for voice service providers that cannot obtain a “certificate” necessary to participate in STIR/SHAKEN until it is feasible for providers so situated to receive a certificate because “it is impossible for a service provider to participate in STIR/SHAKEN without access to the required certificate[.]”<sup>17</sup> Additionally, the Commission granted a one-year extension for services subject to a pending section 214 discontinuance application on or before June 30, 2021, on the basis that “resources ‘are better spent upgrading networks that will have the potential to reap the full benefits of . . . STIR/SHAKEN’” than on services scheduled for imminent discontinuance and removal.<sup>18</sup> The Commission also deemed those portions of a provider’s network that do not use SIP technology to be subject to a continuing extension.<sup>19</sup>

5. In addition to granting these class-based extensions, the Commission established a process whereby individual voice service providers could file petitions for extensions on the basis of undue hardship.<sup>20</sup> The Commission limited this process to extensions of compliance with section 64.6301 of its rules,<sup>21</sup> which establishes the deadline for voice service providers to implement STIR/SHAKEN on their IP networks.<sup>22</sup> To qualify for a provider-specific extension, a voice service provider “must demonstrate in detail the specific undue hardships, including financial and resource constraints, that it has experienced and explain why any challenges it faces meet the high standard of undue hardship to

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<sup>13</sup> 47 CFR § 64.6303. A voice service provider must be able to provide the Commission, upon request, with documented proof that it is participating as a member of a working group, industry standards group, or consortium that is working to develop a non-IP caller identification authentication solution, or actively testing such a solution. *Id.*

<sup>14</sup> TRACED Act § 4(b)(5)(A).

<sup>15</sup> TRACED Act § 4(b)(5)(A)(ii).

<sup>16</sup> *Second Caller ID Authentication Report and Order*, at 19-20, paras. 40-42. The Commission established that a voice service provider qualifies for this extension if it has 100,000 or fewer voice subscriber lines. *Id.* at 19, para. 40; 47 CFR § 64.6304(a).

<sup>17</sup> 47 CFR § 64.6304(b); *Second Caller ID Authentication Report and Order*, at 24, paras. 49, 50.

<sup>18</sup> 47 CFR § 64.6304(c); *Second Caller ID Authentication Report and Order*, at 25-26, para. 51.

<sup>19</sup> 47 CFR 64.6304(d); *Second Caller ID Authentication Report and Order*, at 35, para. 66; TRACED Act § 4(b)(5)(B).

<sup>20</sup> See 47 CFR § 64.6304(e); *Second Caller ID Authentication Report and Order*, at 34, para. 65.

<sup>21</sup> See 47 CFR § 64.6304(e) (“The Wireline Competition Bureau may extend the deadline for compliance with 47 CFR 64.6301 for voice service providers that file individual petitions for extension.”).

<sup>22</sup> 47 CFR § 64.6301.

STIR/SHAKEN implementation within the timeline required by Congress.”<sup>23</sup> The Commission stated that it expected “any voice service provider seeking an extension to file its request by November 20, 2020,” and directed the Wireline Competition Bureau (Bureau) to seek comment on the petitions and to issue its decisions on the petitions by March 30, 2021.<sup>24</sup>

### III. DISCUSSION

6. Two voice service providers timely filed extension petitions: U.S. Cellular and Verizon.<sup>25</sup> We address each in turn.

#### A. THE U.S. CELLULAR PETITION

7. We deny U.S. Cellular’s request for an extension for its VoLTE/IP Multimedia Subsystem (IMS) network, part of its wireless IP network, for an indefinite period of time until it can “complete interconnection with other carriers with which it has an SIP interconnection agreement and to the extent to which such implementation is required by the rules[.]”<sup>26</sup>

8. *Background.* U.S. Cellular claims that, while it “introduced STIR/SHAKEN functionality for its intra-network VoLTE calls” and recently “introduced [SIP] for inter-carrier calls on its IP network,” it is still “working diligently to complete interconnection with other carriers with which it has an SIP interconnection agreement.”<sup>27</sup> It further claims to be “transmitting the required call authentication information in the call path where technically feasible to interconnected carriers via SIP trunking routes,” but that it is still undertaking “efforts to interconnect with other carriers for the purposes of exchanging IP traffic using the STIR/SHAKEN call authentication framework.”<sup>28</sup> U.S. Cellular states it is now “negotiating with other Tier I carriers to implement SIP connectivity as soon as practical” and seeks an extension “until such time that such interconnection is completed.”<sup>29</sup>

9. *Discussion.* We deny U.S. Cellular’s petition because it has not demonstrated it faces undue hardship to implement STIR/SHAKEN by the deadline. The Commission’s rules require a voice service provider to authenticate caller identification information for all SIP calls it originates and, “to the extent technically feasible, transmit that call with authenticated caller identification information” to the

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<sup>23</sup> *Id.* at 34, para. 65.

<sup>24</sup> *Id.* at 34, para. 65. The Commission also explained that “parties seeking additional extensions after [November 20, 2020] are free to seek a waiver of our deadline under section 1.3 of the Commission’s rules” but that it would “not look favorably on requests that rely on facts that could have been presented to the Commission prior to November 20, 2020, with reasonable diligence.” *Id.* at 34, para. 65 n.255.

<sup>25</sup> U.S. Cellular Petition; Verizon Petition. AT&T Services, Inc., and Lumen also filed timely petitions. AT&T Petition for Extension, WC Docket No. 17-97 (filed Nov. 20, 2020); Lumen Request for Extension, WC Docket No. 17-97 (filed Nov. 20, 2020). Both parties later withdrew their petitions. STIR/SHAKEN Extension Withdrawal Letter of AT&T, WC Docket No. 17-97 (filed Mar. 29, 2021); Withdrawal of Request for Extension of Lumen, WC Docket No. 17-97 (filed Mar. 29, 2021).

<sup>26</sup> U.S. Cellular Petition, at 3. U.S. Cellular also seeks an extension for its non-IP “CDMA” network. *Id.* The Commission only established a provider-specific extension scheme for IP networks. *See* 47 CFR § 64.6304(e) (permitting the Bureau to extend the deadline for compliance with 47 CFR 64.601, which established obligations for IP networks). Accordingly, the Bureau cannot grant this request. Moreover, a provider-specific extension for U.S. Cellular’s non-IP network is redundant because “those portions of a voice service provider’s network that rely on technology that cannot initiate, maintain, and terminate SIP calls are deemed subject to a continuing extension.” 47 CFR § 64.6304(d); *see also id.* (“A voice service provider subject to the foregoing extension shall comply with the requirements of 47 CFR 64.6303 as to the portion of its network subject to the extension.”).

<sup>27</sup> U.S. Cellular Petition, at 2-3.

<sup>28</sup> Letter from Peter M. Connolly, Counsel to U.S. Cellular, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 17-97, at 2 (filed Feb. 8, 2021).

<sup>29</sup> U.S. Cellular Petition, at 2-3.

next provider in the call path.<sup>30</sup> In adopting this rule, the Commission specifically recognized that “the transmission of STIR/SHAKEN authentication information over a non-IP interconnection point is not technically feasible at this time.”<sup>31</sup> We understand U.S. Cellular to seek an extension to account for instances of non-IP interconnection and to allow it to seek interconnection in IP with providers with whom it exchanges traffic. We thus agree with NCTA—The Internet & Television Association, that U.S. Cellular’s “requested extension is unnecessary because the Commission’s rules do not require providers to complete implementation of IP interconnection with other IP-enabled providers by the June 30, 2021 deadline.”<sup>32</sup> In a subsequent *ex parte* filing, U.S. Cellular states that it made its initial filing “out of an abundance of caution” and that it also “agree[s] with the reply comments of NCTA that our request for an extension may have been ‘unnecessary.’”<sup>33</sup> The only commenter to support this extension request—USTelecom—did not specifically address U.S. Cellular’s interconnection concerns.<sup>34</sup> Because U.S. Cellular does not have to transmit traffic with authenticated caller ID information where it is not technically feasible to do so, its claimed undue hardship has already been addressed by the Commission’s rules, and it identifies no other barriers to fully implementing STIR/SHAKEN by the deadline. We therefore deny its petition for an extension.

## B. THE VERIZON PETITION

10. Verizon seeks a declaratory ruling that its “FTTP-SIP” platform, a portion of its fiber to the premises (FTTP) wireline network that provides Plain Old Telephone Service (POTS), is not an IP network that must comply with the STIR/SHAKEN implementation mandate by June 30, 2021, and in the alternative seeks a three-year extension of the STIR/SHAKEN requirements for that portion of its network.<sup>35</sup> Because the Commission has not previously addressed whether a particular network constitutes an IP network within the meaning of the caller ID authentication rules, we find it inappropriate for the Bureau to do so here.<sup>36</sup> We therefore limit our determination to Verizon’s alternative extension request, which we must address by the deadline set by the Commission,<sup>37</sup> and which we deny for the reasons set forth below.

11. *Background.* Verizon states that, although the FTTP-SIP service uses SIP, Verizon configured the service to provide customers with “the features that they had been receiving on copper with [TDM].”<sup>38</sup> Verizon claims that, as a result, FTTP-SIP does not include the “advanced connectivity features” of its VoIP service and “instead deploys the same legacy interfaces established many decades ago for the copper POTS network.”<sup>39</sup> Verizon states that the FTTP-SIP platform accounts for less than 1% of its “overall mass-market customer base[.]”<sup>40</sup> Verizon states that all FTTP-SIP customers “have a

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<sup>30</sup> 47 CFR § 64.6301(a)(2).

<sup>31</sup> *First Caller ID Authentication Report and Order*, at 19, para. 35 n.135.

<sup>32</sup> NCTA – The Internet & Television Association Reply, WC Docket No. 17-97, at 1 (rec. Jan. 19, 2021) (NCTA Reply); *see also id.* at 3 (“as the rules do not require U.S. Cellular to complete interconnection and exchange traffic with other carriers with which it has a SIP interconnection agreement, its waiver request should be dismissed”).

<sup>33</sup> *Id.*

<sup>34</sup> USTelecom Comments, WC Docket No. 17-97, at 3 (rec. Feb. 8, 2021) (USTelecom Comments).

<sup>35</sup> Verizon Petition at 2-3; *see* 47 CFR § 64.6301.

<sup>36</sup> 47 CFR § 0.291(a)(2).

<sup>37</sup> *Second Caller ID Authentication Report and Order*, at 34, para. 65.

<sup>38</sup> Verizon Petition, at 4.

<sup>39</sup> *Id.* at 5.

<sup>40</sup> *Id.* at 2.

VoIP alternative . . . connected to their premises and available to them[.]”<sup>41</sup> Verizon calls its VoIP platform “Fios Digital Voice.”<sup>42</sup> Verizon claims that it “is on track to implement STIR/SHAKEN on its Fios Digital Voice platform . . . prior to June 2021.” Verizon states that once it “has fully implemented STIR/SHAKEN for Fios Digital Voice customers . . . , it will have deployed STIR/SHAKEN-capable facilities to every FTTP-SIP customer.”<sup>43</sup>

12. Verizon asserts it is taking steps to resolve the issues on its FTTP-SIP platform but needs additional time to fully comply with the STIR/SHAKEN rules for this portion of its network. It alleges that because of the legacy “end-of-life” nature of the FTTP-SIP switches, “attempting to deploy STIR/SHAKEN on switches currently serving FTTP-SIP customers by June 2021 would require substantial resources reprioritization, risk harming consumers by creating network outages, cost millions of dollars, and would likely not be achievable in any event.”<sup>44</sup> To deploy STIR/SHAKEN on the FTTP-SIP network by the June 30, 2021, deadline, Verizon states it would have to either “retrofit” the network switches to support STIR/SHAKEN or replace the switches with “new technology and then [implement] STIR/SHAKEN on each new switch.”<sup>45</sup> Verizon claims both options are “infeasible.”<sup>46</sup> Instead, Verizon states it has begun a “platform upgrade and customer migration program” to upgrade the FTTP-SIP switches but estimates the project will take “approximately five years to complete.”<sup>47</sup> While Verizon asserts it will take five years to complete this upgrade and migration program, it asks for only a three-year extension. Verizon claims that completing the work within the limits of the requested three-year extension “would still require a substantial acceleration of Verizon’s planned network transformation” but “would at least permit us to avoid stranding investment on end-of-life equipment.”<sup>48</sup>

13. *Discussion.* We deny Verizon’s extension request because it has not demonstrated it faces undue hardship, as required by the TRACED Act. In interpreting the Commission’s requirement that a provider seeking an extension show “specific undue hardships, including financial and resource constraints” that “meet the high standard of undue hardship,” we initially examine the circumstances in which it granted class extensions.<sup>49</sup> In those instances, the barriers to implementation were, respectively, prohibitive expense for small providers,<sup>50</sup> impossibility because of the inability to receive a certificate,<sup>51</sup> or futility where a service is already scheduled for discontinuance<sup>52</sup> and where non-IP networks simply cannot implement STIR/SHAKEN.<sup>53</sup> While Verizon asserts that the upgrades would be costly, it does not claim that they may be as prohibitively expensive as those the Commission found justified a class extension for small providers. Though Verizon describes this service as “end-of-life” it is not analogous to the section 214 discontinuance extension because Verizon describes no plan to imminently discontinue

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<sup>41</sup> *Id.* at 2.

<sup>42</sup> *Id.*

<sup>43</sup> Letter from Christopher D. Oatway, Associate General Counsel, Verizon, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 17-97, 3 (filed Feb. 9, 2021) (*Verizon Ex Parte*).

<sup>44</sup> Verizon Petition, at 3.

<sup>45</sup> *Id.* at 7-8.

<sup>46</sup> *Id.* at 7-8.

<sup>47</sup> *Id.* at 3.

<sup>48</sup> *Id.* at 3-4.

<sup>49</sup> *Second Caller ID Authentication Report and Order*, at 35, para. 65.

<sup>50</sup> *Id.* at 19, para. 42.

<sup>51</sup> *Id.* at 24, para. 50.

<sup>52</sup> *Id.* at 25, para. 51.

<sup>53</sup> *Id.* at 35, para. 67.

the service and, to the contrary, states there is a long term benefit to deploying STIR/SHAKEN on the FTTP-SIP platform.<sup>54</sup> Verizon only briefly explains why full compliance would risk network outages or would be likely to be unachievable, and we do not find that these unsupported assertions outweigh the Commission's direction to apply a high standard of undue hardship when considering whether to grant an extension.<sup>55</sup> The need for "resource reprioritization" is not a basis for an extension, but rather is a natural consequence of Congress and the Commission establishing a mandate to implement STIR/SHAKEN. Furthermore, Verizon has identified no unforeseen circumstances justifying an extension to comply with a deadline it has known was on the horizon since Congress enacted the TRACED Act in December 2019. The only commenter to address this petition failed to address the specifics of Verizon's petition,<sup>56</sup> so we find no basis in that comment to alter our conclusion. Accordingly, we deny Verizon's requested extension.<sup>57</sup>

#### IV. ORDERING CLAUSES

14. Accordingly, IT IS ORDERED that, pursuant to the authority contained in sections 4(i), 4(j), 227(e), 227b(4)(b)(5), and 251(e) of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i), 154(j), 227(e), 227b(4)(b)(5), and 251(e), and section 64.6304(e) of the Commission's rules, 47 CFR § 64.6304(e), and pursuant to the authority delegated under sections 0.91 and 0.291 of the Commission's rules, 47 CFR §§ 0.91, 0.291, the Petitions for Extension of U.S. Cellular and Verizon, ARE DENIED.

15. IT IS FURTHER ORDERED that this Order SHALL BE EFFECTIVE upon release.

FEDERAL COMMUNICATIONS COMMISSION

Kris Anne Monteith  
Chief  
Wireline Competition Bureau

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<sup>54</sup> Verizon *Ex Parte* at 3 ("deploying STIR/SHAKEN to FTTP-SIP . . . can nevertheless benefit the overall voice telephony ecosystem in the long run.").

<sup>55</sup> Verizon Petition, at 13 (stating that "to implement STIR/SHAKEN by retrofitting already-end-of-life switches would be prohibitively expensive both in terms of dollars and resource diversion and create risks of problematic outages for our customers").

<sup>56</sup> USTelecom Comments at 3.

<sup>57</sup> If it is unable to comply as the deadline approaches, Verizon is free to file a petition for waiver in which it may attempt to show good cause why it cannot, despite its best efforts, complete implementation in a timely manner. *See Second Caller ID Authentication Report and Order*, at 34, para. 65 n.255.