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Danielle May-Cuconato
Secretary General
Canadian Radio-television and Telecommunications Commission
Ottawa, Ontario
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Re: Telecom Notice of Consultation CRTC 2017-4

Ms. May-Cuconato:

The Alliance for Telecommunications Industry Solutions (ATIS) offers the following responses to questions 1, 2 and 3 of the Telecom Notice of Consultation CRTC 2017-4.

ATIS is a global standards development and technical planning organization that leads, develops and promotes worldwide technical and operations standards for information, entertainment, and communications technologies. ATIS' diverse membership includes key stakeholders from the Information and Communications Technologies (ICT) industry – wireless and wireline service providers, equipment manufacturers, broadband providers, software developers, consumer electronics companies, public safety agencies, and internet service providers. ATIS is also a founding partner and the North American Organizational Partner of the Third Generation Partnership Project (3GPP), the global collaborative effort that has developed the Long Term Evolution (LTE) and LTE-Advanced wireless specifications. Nearly 600 industry subject matter experts work collaboratively in ATIS' open industry committees and incubator solutions programs.

ATIS has been actively working to mitigate the impact of caller ID spoofing and robocalling for many years. ATIS has approached this complex issue from a number of different perspectives and continues to develop technical and operational resources for the industry. As noted in the above-referenced Telecom Notice of Consultation, ATIS has developed a profile for STIR, entitled Signature-based Handling of Asserted information using toKENs (SHAKEN), that enables telecommunications service providers to perform certification at call origin and verification at call termination of telephone numbers on behalf of their subscribers. ATIS has also developed a detailed test plan to validate the SHAKEN protocol and to ensure interoperability between providers, and is developing a framework for ensuring that verified caller ID information is displayed to end users in a consistent and secure format.

1. *Comment on the appropriateness and effectiveness of using STIR and SHAKEN to certify and verify caller ID information in order to reduce caller ID spoofing in Canada and whether there are other standards or approaches that would be more effective and appropriate for ensuring the accuracy and authenticity of caller ID information in Canada. Comments should also address any concerns regarding the protection of customer information.*

Response: ATIS believes that STIR/SHAKEN can provide a highly effective mechanism to certify and verify CLID (Calling Line Identification - the calling telephone number) for the calling scenarios it addresses. Specifically, STIR/SHAKEN can certify and verify calls when the following conditions are met:

- The call is "end-to-end SIP"
- Both the originating and terminating service providers have implemented SHAKEN

SHAKEN allows the service provider to "attest" to different levels of confidence, depending on what the service provider knows about the origin of the call. The three levels of attestation in SHAKEN are fully specified in the SHAKEN document, but the key differences between the levels are:

- **A: Full attestation**: has a direct authenticated relationship with the customer and a verified association with the telephone number used in the call.
- **B. Partial attestation**: has a direct authenticated relationship with the customer but has not verified the number used in the call.
- **C. Gateway attestation**: has no relationship with the originator of the call, but can identify the gateway used to access the network.

It is worth noting that STIR/SHAKEN is only used to authenticate and verify the calling party CLID information. It does not, by itself, reduce or block unwanted calls. However, by ensuring the accuracy and authenticity of CLID information, it allows the end user, or an entity authorized to act on behalf of the end user, to make informed decisions on whether or not to accept calls.

At this time, STIR/SHAKEN is the only mainstream approach under consideration in the industry to certify and verify CLID information in end-to-end SIP networks. Given the early stages of development, ATIS is not aware of products currently available on the market. However ATIS is aware of prototypes, and it is expected that the vendor community will start, if it has not already started, to develop products supporting STIR/SHAKEN.

STIR/SHAKEN does not have any impact on the protection of customer information. CLID is currently transmitted "in the clear" for both SS7 and SIP, and this will continue with SHAKEN. If the calling party requests that their CLID not be displayed, the terminating network must strip this information before connecting the call. With SHAKEN, the same restrictions would apply; the network would verify the calling party information, but would not transmit the verified number to the called party.

2. *With respect to STIR and SHAKEN, comment on*

a. the use of the tiered approach defined in SHAKEN whereby TSPs fully or partially certify caller ID information based on the nature of their relationship to the calling party, their knowledge of the telephone number, and the origin of the call, as well as the effectiveness of this approach at reducing caller ID spoofing in Canada;

Response: The tiered approach specified in SHAKEN recognizes that the service provider does not always have complete information on the authenticity of the CLID information in the call signaling. An obvious example of this is at a gateway, where the service provider signing the SHAKEN token is not the originating service provider, and therefore cannot authenticate the CLID information. SHAKEN allows this service provider to sign with "what they know" - in this case, the identity of the gateway. This can provide valuable information when performing a traceback to identify the source of a nuisance call. When the service provider has additional information, such as the identity of the enterprise originating the call, the service provider can attest to this, which provides greater confidence the call is valid and can be useful for reputation systems.

The value of SHAKEN's tiered approach is that the service provider can attest to as much, or as little, information it knows about the origin. This maximizes the information available to the end user, and makes it easier to identify and stop those who abuse the system.

b. the ability of STIR/SHAKEN to ensure the accuracy and authenticity of the calling party's name in Canada, its effectiveness in doing so, as well as any additional measures that are required to this end;

Response: The STIR/SHAKEN specification does not yet include calling party name (i.e., CNAM), though the intent is to extend the specification in the future to support calling party name. Calling party name has been identified on the list of future extensions but has not been formally added to the roadmap with an anticipated availability date. ATIS recognizes that the Canadian implementation of CNAM is different from the U.S. and may bring its own set of challenges.

c. the effectiveness of the display framework developed by ATIS to ensure that verified caller ID information is displayed to end-users in a consistent and secure format;

Response: The display framework is on the ATIS roadmap, but is still in the early stages of work. A consistent display framework will be essential for providing useful information to end users, but it is important to recognize there are several players with important roles in this process, including:

- ATIS will develop the display framework to provide guidelines for displaying verification information to the end user in a consistent form across a wide range of display types.
- Other industry organizations will be responsible for translating these broad guidelines into more detailed guidance for individual technologies (e.g., GSMA for wireless devices, CableLabs for cable, etc.).
- Device manufacturers have the ultimate say in developing user interfaces for their devices, consistent with the technology specific guidelines.

Given the wide range of display types that will be available, a strong consumer education program will also be essential to the success of the efforts to display verified CLID information to the end user.

In light of the above, it is premature to comment on the effectiveness of the display framework.

d. the designation and governance of one or more authorities that would issue certificates to enable the implementation of STIR/SHAKEN in Canada, and that would authorize and provide secure access to these authentication mechanisms; and,

Response: The governance model for SHAKEN is currently being finalized and the overall structure is stable. This model envisions a single governance authority for each country, though it would be possible for two or more countries to agree to use a common governance authority. Within each country it is expected that the national regulator would have the ultimate say in deciding the governance authority for that country.

The more countries adopting STIR/SHAKEN internationally, the more successful and ubiquitous will be the verification of calling party's CLID. ATIS does not have jurisdiction outside of North America but where possible will work with international partners and regulators in promoting the STIR/SHAKEN framework.

e. the implementation and effectiveness of approaches to certify and verify calls that originate or terminate on legacy networks, or that transit over legacy networks.

Response: If legacy networks are involved in any portion of a call - origination, termination, or transit - it will not be possible to certify and verify the calling party information.

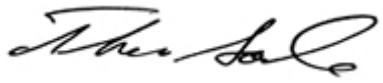
Note: Legacy networks contain an ISUP Screening Indicator that is sometimes used to indicate when the calling party information has been verified by the network. This has some similarities with SHAKEN, but there are important differences in both the content and semantics of the information conveyed. These differences mean that information would be lost or changed when translating between the legacy and the SIP domains. As a result ATIS does not specify this translation, and the mapping of information between SHAKEN and legacy networks is not recommended.

3. *Comment on the most appropriate metrics to measure the deployment of STIR/SHAKEN or another standard or approach to ensure the accuracy and authenticity of caller ID information in Canada.*

Response: These metrics do not yet exist. ATIS has a work item to develop metrics to measure deployment of SHAKEN. This document is expected to be available before the end of this year. These metrics will take into consideration best practices for deploying SHAKEN, which are also being developed jointly by ATIS and the SIP Forum. The recommended metrics can be provided to the CRTC as soon as they are complete.

If you have any questions or need additional information, please do not hesitate to contact the undersigned.

Regards,



Thomas Goode
ATIS General Counsel