ATIS IPNNI

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Contribution

Title: Proposed changes/additions to OOB SHAKEN Baseline

Source\*: Charter Communications

Issue Number:

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Abstract

This contribution proposes changes and additions to the SHAKEN OOB Baseline

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Proposed changes to the SHAKEN OOB Baseline:

\*\*\*\*\*\*\*1st change

Section 4.1 “Problem Statement – Why Out-of-Band SHAKEN is needed?” should be deleted. The scope of the document is calls between SIP enabled OSPs to SIP enabled TSPs. The material in this section deals with the general issue of PSTN interconnect and not specific to the scope of this document. Also any economic analysis should also include economic impact of implementing SHAKEN OOB on networks that are already interconnected via SIP to local tandems.

\*\*\*\*\*\*\*2nd change

Section 4.2 “Out-of-Band STIR Overview” should be moved to an Annex (which can be referenced in section 5). No need to put in main body a solution that is not being proposed.

\*\*\*\*\*\*\*3rd change

Replace section 6 “6 CPS Discovery” with

Out-of-Band SHAKEN defines a model with one CPS per TNSP. The STI-AS of the OSP must be able to discover the publicly accessible URL of the TNSP’s CPS. The method of finding the TNSP depends on the type of number. For special numbers (e.g. Toll Free, 500, 700, 900, 710 (GETS), Operator and Directory Services) the TNSP is the provider of the service (e.g. Toll Free Service Provider). The method of determining the TNSP depends on the special number category (e.g. Toll Free Query for Toll free number, table look up for 900 numbers, customers Long Distance Carrier for 700 numbers). Details for these special numbers and other national numbers are covered below. Methods for handling international numbers are for further study.

Note in some cases there maybe multiple TNSPs. E.g. for area code 710 (GETS) there are multiple carriers that provide GETS handling and for additional reliability an OSP may alternate route calls to area code 710 among these multiple carriers. How to handle the case of multiple TNSPs is for further study.

\*\*\*\*\*\*\*4th change

In section 5.1 propose modifying 2nd, 3rd, & 4th paragraphs - note probably should move this information elsewhere since not architecture related.

If multiple PASSporTs and/or Resource-Priority need to be transmitted to the TSP, then either a single HTTP request can be made containing multiple PASSporTs and/or Resource-Priority or multiple HTTP requests can be made containing a single PASSporT or Resource-Priority. The CPS will need a method to correlate all of the information related to a single call. The connection between the STI-AS and CPS must be secured using HTTPS.

Before the PASSporT is persisted, the TSP’s CPS verifies it as described in ATIS 1000074-E (except for checking that the date, “orig” claim “tn” and “dest” claim “tn” values match the SIP INVITE) to confirm that the PASSporT was generated by an approved service provider within the SHAKEN ecosystem using a valid SHAKEN certificate.

The CPS should use local policy to determine which PASSporTs to discard if the CPS is nearing an overload condition. The CPS should use standard HTTP and TCP congestion control during high load conditions. PASSporTs received from the CPS are deleted when the PASSporT becomes stale. Based on local policy PASSporTs received from the CPS may be discarded when correlated with an incoming call or retained until become stale to allow for alternate routing or multiple call attempts between the same calling/called parties. If the STI-VS receives different PASSporTs in-band and out-of-band, then if the in-band PASSporT indicate A or B Attestation (which would indicate added by the OSP) then the in-band PASSporTs should be used. Otherwise (i.e. C Attestation), the out-of-band PASSporTs should be used.

\*\*\*\*\*\*\*45h change

In section 5.1 modify the 5th paragraph as follows (note many interfaces that are internal to a network are specified by standards to allow interoperability between vendor equipment)

The interface for the STI-VS to retrieve a PASSporT from the CPS isnot defined in this document. The HTTP GET message, as defined in the Out-of-Band STIR IETF draft, may be used as a reference.

\*\*\*\*\*\*\*6th change – the following 4 new sections are proposed.

**X1 Non-SIP interface to STI-AS/STI-VS**

While Figure 2 shows the interface to the STI-AS and STI-VS as being SIP other alternatives are possible. [ATIS-1000082] defines a Representational State Transfer (REST)ful interface that can be used. If this approach is used then major changes are needed to accommodate Out-of-Band SHAKEN. The interface defined in [ATIS-1000082] to the STI-AS only passes the information that needs to be signed and not the entire content of the INVITE. For Out-of-Band SHAKEN the STI-AS may need the following additional information:

* Any information needed for CPS discovery (e.g. Result of LNP or Toll Free Query)
* All (if any) Identity headers and/or Resource-Priority headers already contained in the INVITE. Such headers may be present if a call was retargeted or if sent by an enterprise.

The interface to the STI-VS passes the information from the Identity header to be verified. The STI-VS then returns the result of the verification. For Out-of-Band SHAKEN the STI-VS may need to also return the following:

• All (if any) Identity headers and/or Resource-Priority headers retrieved from the CPS.

# X2 STI-VS and OOB Validation

If validation of an OOB PASSporT fails for any reason, the STI-VS should treat this as if there were no OOB PASSporT and not as a failure. This is necessary since there may be multiple call attempts between the same 2 parties and the OOB PASSporT delivery is not guaranteed even if the call arrived.

If an OOB PASSporT is validated for a call then the STI-VS should

* If the interface is SIP add a corresponding Identity header(s) to the INVITE or
* Pass the Identity header(s) information back in its response

# X3 Congestion

The STI-AS should be able to deliver the OOB PASSporT for priority calls (e.g. as indicated by an RPH) even when the TNSP’s CPS has indicatied congestion.

# X4 Transit bypass of the TNSP

When a transit carrier is routing a call it may in some cases not send the call to the TNSP. For example, a transit carrier based on local routing policy may know that the called telephone number

* belongs to an enterprise that is directly connected to the transit carrier and deliver the call directly to the enterprise.
* was acquired by a directly connected TSP from a reseller and deliver the call directly to this TSP

In such cases the OOB PASSporT would not be delivered to the CPS of the TSP.