**ATIS IPNNI**

**April 28-29, 2020**

**Contribution**

**Title: Issues for SHAKEN OOB**

**Source**\***: Charter Communications**

**Issue Number:**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Abstract**

This contribution identifies some issues for SHAKEN OOB.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# Architecture Impact

The architecture in Figure 2 of the SHAKEN OOB baseline shows the STI-AS as an IMS Application Server (either SIP or HTTP). However, in order for the STI-AS to locate the CPS of the TSP it would need information that is typically determined by the BGCF (e.g. results of LNP & Toll Free Queries). Either the STI-AS will have to duplicate some of the BGCF functionality & cost or the STI-AS function will need to be moved - e.g. to be part of the BGCF or post BGCF.

The STI-VS is also shown as an IMS Application Server. Previously the expectation is that the STI-VS would only be invoked when there was a shaken Identity header present. With OOB SHAKEN this would need to be invoked on all inbound calls. This will require additional STI-VS Capacity (Cost) with potentially little value (depends on what percent of calls without a shaken Identity header will have OOB SHAKEN).

# Determining the TSP

For some call types (e.g. GETS, 500, 700, 800, 900 numbers) the OSP will not be able to determine the TSP and would need instead to send the SHAKEN OOB information to the provider of the service. In some cases (e.g. GETS) there may be potentially multiple providers that are alternate routed among. In such cases, either the STI-AS sends OOB shaken to the CPS of all the potential providers (which could have impact on the GETS providers CPS) or the STI-AS would need to be invoked again when alternate routing occurs.

In reality the STI-AS would find the TN Service Provider (TNSP) which is not always the TSP. E.g. some enterprises are connected to multiple SPs not only for origination but also for terminating service. When a call that is destined to an enterprise is routed via a transit carrier (i.e. not the TNSP) that has connectivity to the enterprise, the transit carrier may route the call directly to the enterprise and bypass the TNSP. In such case the transit carrier becomes the TSP – but its CPS would not have received the OOB SHAKEN information.

# CPS Congestion Control

There may be need for a CPS congestion control mechanism. E.g. when there is a natural disaster in an area the transit carriers with connectivity to the impacted region will typically block many of the inbound calls to the region and give priority to outbound calls. However, even though a call is blocked the STI-AS in the OSP may have sent the OOB SHAKEN information to the TSP’s CPS. In addition, multiple transit carriers may also send the same information to the CPS.

One possible solution would be to provide a back-off mechanism between the STI-AS and the CPS. If such a mechanism were created we would also need to determine what impact if any it has on processing the call.

Also should consider the impact of the existing toll free gapping mechanism and SHAKEN OOB.

# Is an In-Band indication of OOB needed?

If transit carriers can send OOB SHAKEN then it may be desirable to have an indication that an upstream carrier has already performed OOB SHAKEN. This way a transit carrier would know not to perform OOB SHAKEN when it sees such an indication. With alternate routing, it is possible for the TSP to reject the same call multiple times (I have seen it happen over 100 times when the call was rejected with a 404 with Reason header having a Q.850 of 3 – no route to destination).