

IP NNI Technical Report

Full Attestation Alternatives for Enterprises and Business Entities with Multi-Homing and Other Arrangements

Gary Richenaker

SIP NOC

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background



business problem

A SHAKEN Originating Service Provider (OSP) may not have complete locally available information as the basis for assigning a “full attestation - A” to particular calls.

scope of report

The report summarizes a few different mechanisms; Delegated Certificates, EV Certificates with TN Letter of Authorization (LOA), and Central Database, to provide the OSP with additional information in order to support marking the call with the highest attestation level

use cases



overview

The following Use Cases define the problem where in the SHAKEN ecosystem the Originating SP (OSP) does not have a direct verified association between the customer and the Caller ID presented and would therefore Attest to the call as “B”, at best

assumptions

No solution mechanisms are proposed with the Use Cases, they are to highlight the problem.

In each Use Case, the TNSP and OSP are different Service Providers

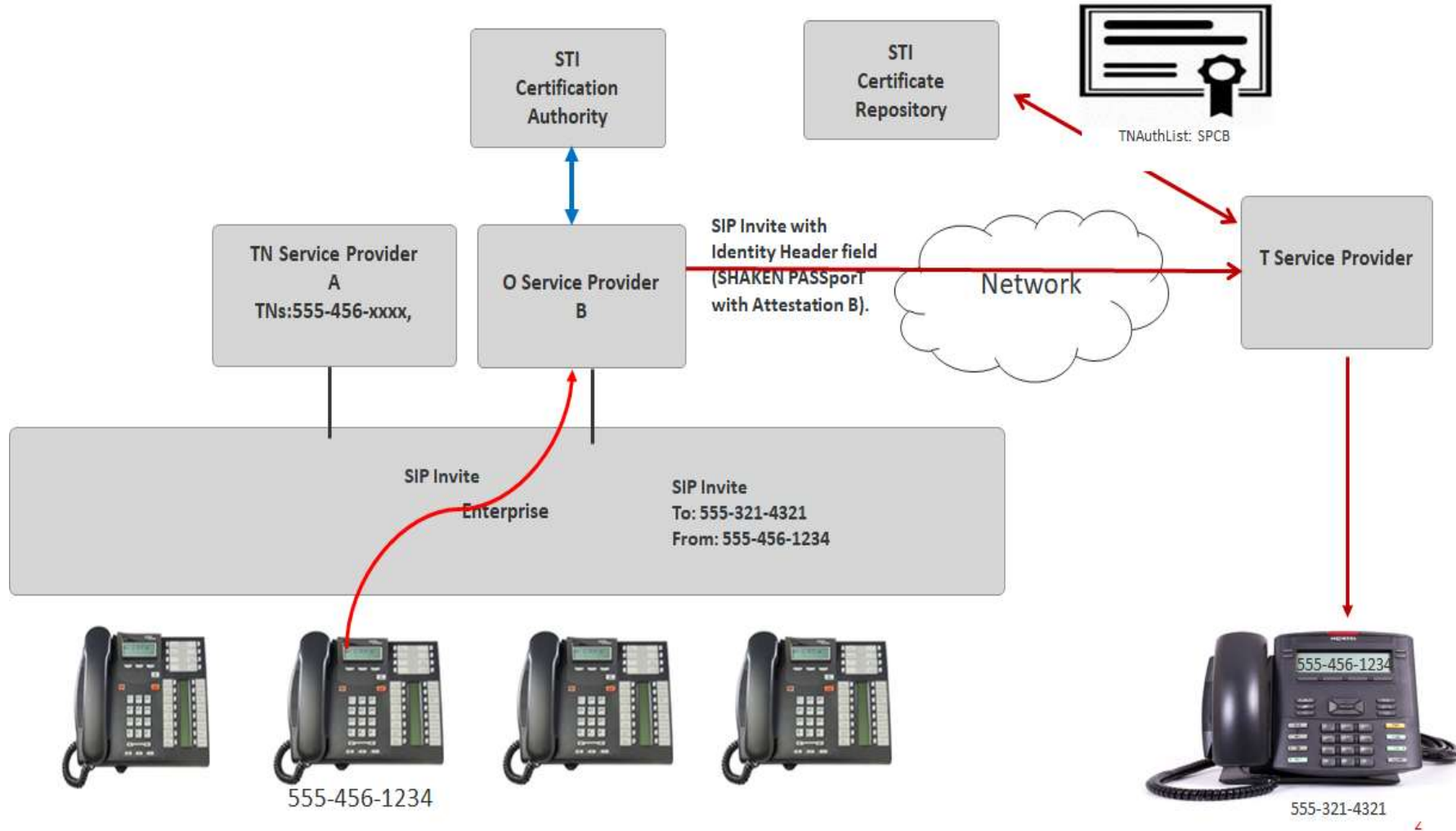
Normally under SHAKEN definitions this call would receive an Attestation “B” since OSP B is not the TNSP

principals

A core set of principles has been defined to in order to attain full attestation in the event there is no naturally verified association available to the OSP regarding the customer and the use of a TN as the Caller ID

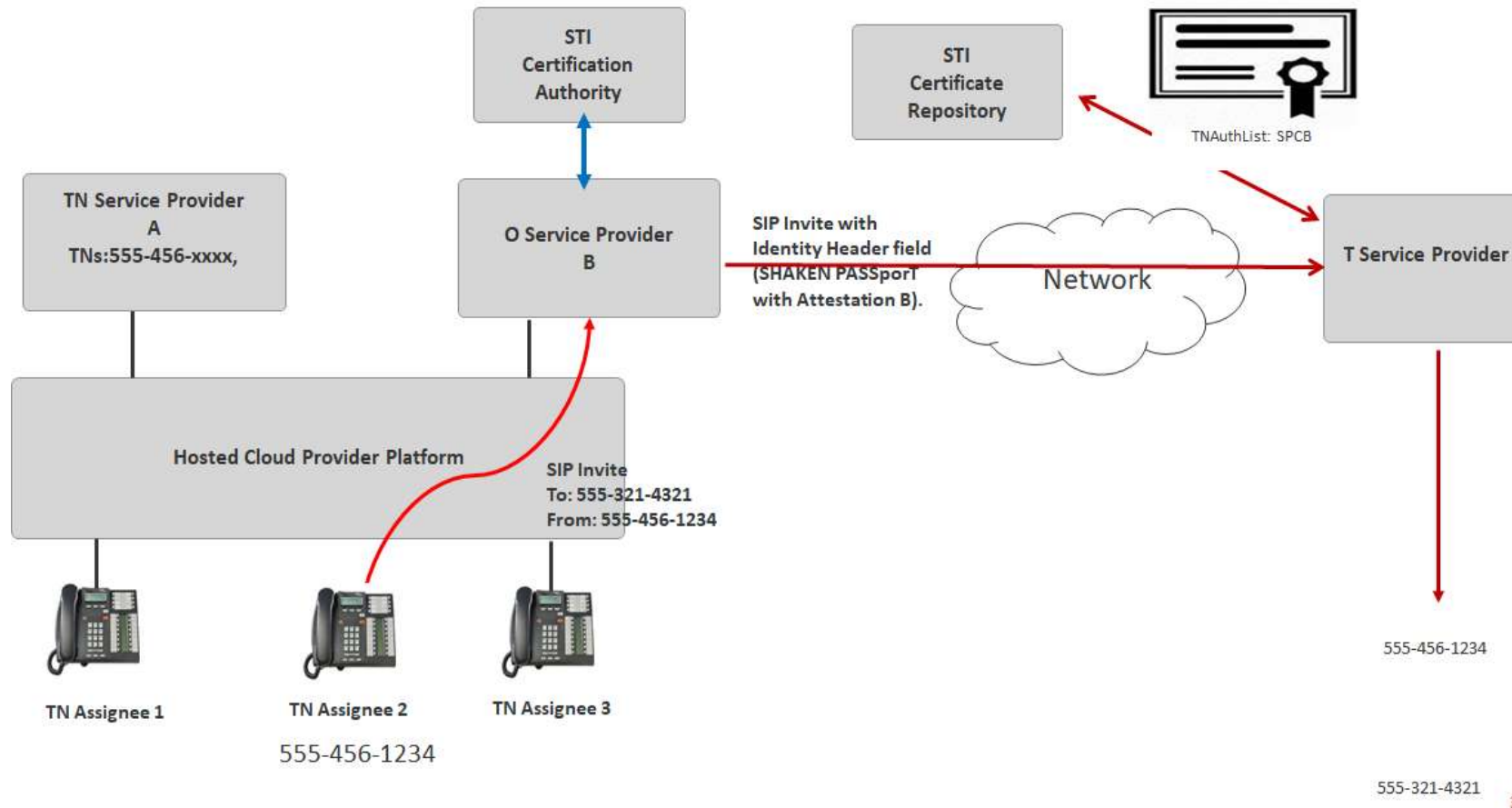
Annex A in the report provides various solution mechanisms and associated impacts with each Use Case.

Use Case 1: Multi-Homed Enterprise/Government with On Premise PBX



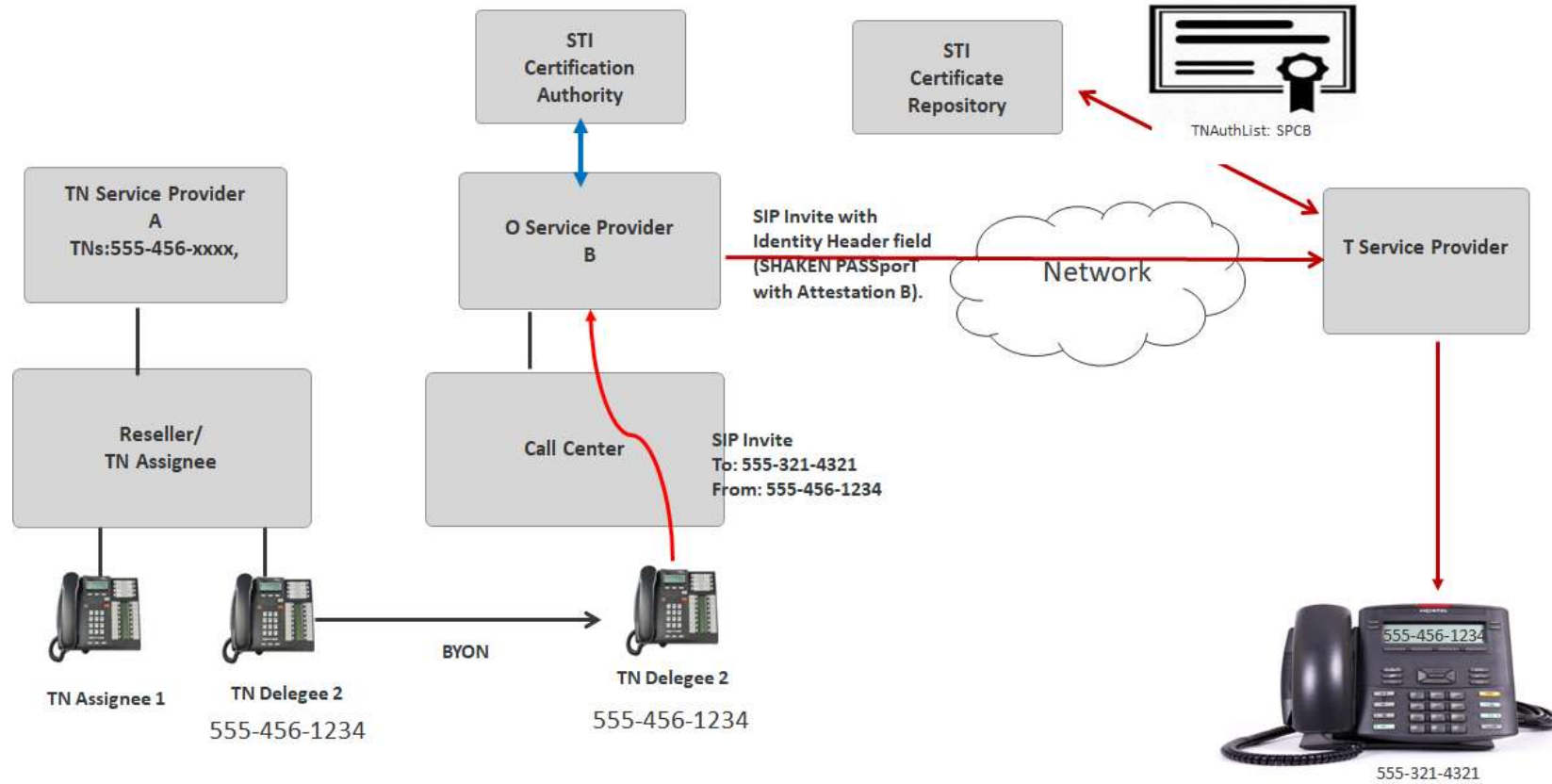


Use Case 2: Multi-Tenant Hosted/Cloud PBX, OTT to PSTN, Unified Communications, and or Other Cloud Communication Platform





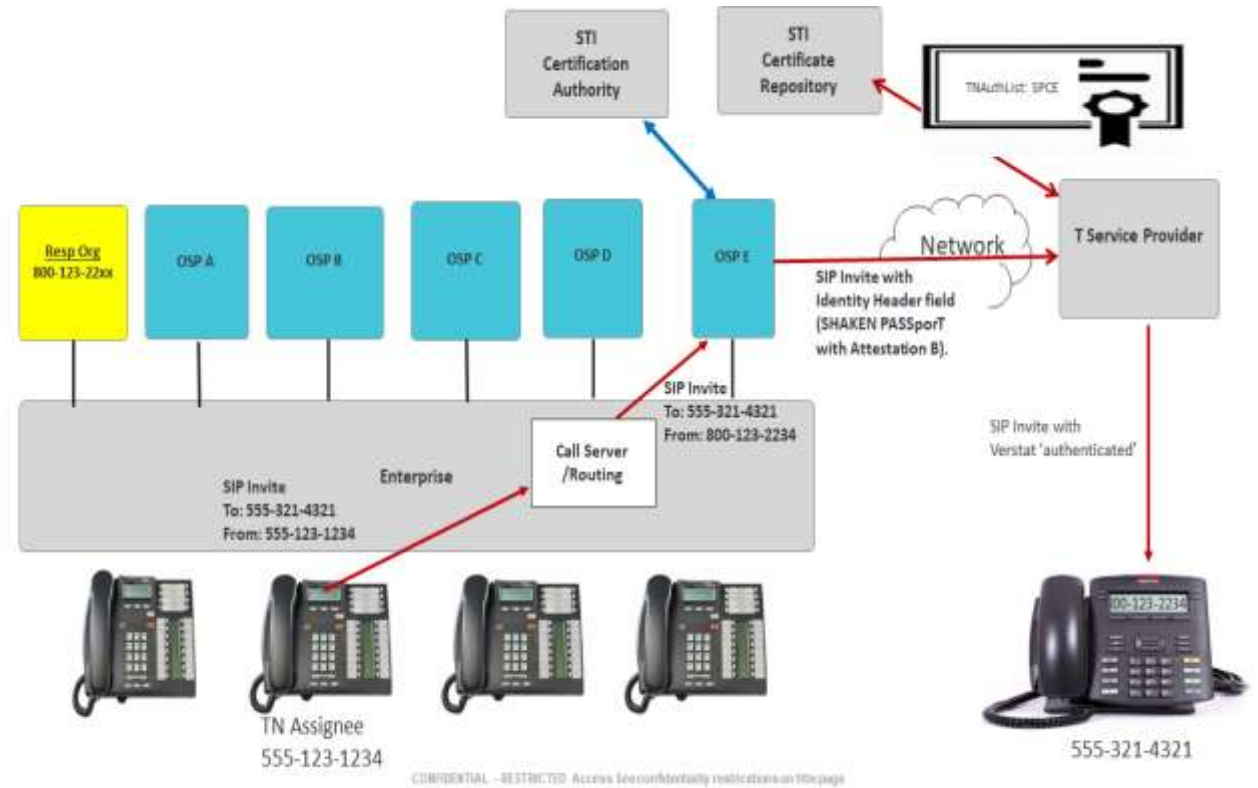
Use Case 3 – Call Centers, Bring Your Own Number (BYON)





Use Case 4 – Toll Free Originations (On Premise PBX, Hosted/Cloud Platform)

- A shared use Toll-Free Number is originated from multiple enterprises.
 - This is the case where enterprises in different geographical locations originate calls using the same Toll-Free Number but utilizing different OSPs.
- The same Toll-Free Number is originated from multiple locations.
 - This is the case where an enterprise uses the same Toll-Free Number but originates calls in different locations utilizing different OSPs.





alternative mechanisms

Delegated Certificates (3 Sub-Options)

- Each extend the baseline SHAKEN framework
- Sub-Options provide different options by which the industry can issue STI certificates
- Once an enterprise has obtained an STI certificate each implementation models are nearly identical

EV Certificates /TNLoA

- The entity asserting the use of a calling TN is either directly known or is identified by a “User Identity” header whose signature is tied to Extended Validation (EV) credentials

Centralized DB approach

- A database of TNs is provided by a central authority
- The purpose is to be an authoritative source of TN-to-Enterprise association

Summary

- Recommends that the industry consider all three mechanisms as viable
- A matter of Originating Service Provider local policy when determining how to address the more complex attestation use cases

summary



SHAKEN

SHAKEN has been defined as a framework that utilizes protocols that work together in an end-to-end architecture to provide traceability of calls to the originating service provider (OSP), and to allow the OSP to indicate whether or not a calling telephone number (calling TN) is valid.

PROBLEM

It is recognized that there are conditions where the OSP lacks a direct mechanism to fully attest that there is a known authenticated customer and/or that the customer associated with the calling TN is valid.

ALTERNATIVES

This TR identifies approaches on how each method can make it authoritative or sufficiently trustworthy, and how it is securely conveyed in order to enable the OSP to provide full Attestation "A".



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