**ATIS IPNNI Task Force**

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**Contribution**

**TITLE: Proposed Text for Section 4.3 Reference Architecture for SIP RPH Signing**

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**Abstract**

This contribution proposes text for Section 4.3 (Reference Architecture for SIP RPH Signing).

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1 Introduction

This contribution proposes text for Section 4.3 (Reference Architecture for SIP RPH Signing) of the baseline text.

2 Proposal

The following is proposed for Section 4.3:

## Reference Architecture for SIP RPH Signing

Editor’s Note: This section will provide a reference model for RPH Signing

The figure below shows the reference architecture for SIP RPH signing. It is an extension to the SHAKEN architecture defined in [ATIS-100074] for signing the SIP RPH of NS/EP NGN-PS calls across IPNNIs. In Figure 8, the NS/EP NGN-PS call is originated from service provider A’s network that performs the authentication service and the NS/EP NGN-PS call is terminated in service provider B’s network, which performs the verification service. The functional elements within black rectangular boxes are IMS and SHAKEN elements while the dotted red boxes are introduced functional elements necessary to realize the SIP RPH signing for NS/EP NGN-PS.



The reference architecture includes the following elements:

**IMS Elements:**

* SIP User Agent (SIP UA) – This component represents the originating and terminating end points for an NS/EP NGN-PS session.
* IMS/Call Session Control Function (CSCF) – This component represents the SIP registrar and routing function. It also has a SIP application server interface.
* Session Border Controller – Interconnection (SBC-I) (Interconnection Border Control Function (IBCF)/Transition Gateway (TrGW) – This function is at the edge of the service provider network and represents the Network-to-Network Interface (NNI) or peering interconnection point between telephone service providers. It is the ingress and egress point for SIP calls between providers.

**SHAKEN Elements**

* Secure Telephone Identity Authentication Service (STI-AS) – Defined in [ATIS-1000074] for TN signing.
* Secure Telephone Identity Verification Service (STI-VS) – Defined in [ATIS-1000074] for TN signing.
* Call Validation Treatment (CVT) – Defined in [ATIS-1000074] for TN signing.
* Secure Key Store (SKS) – Defined in [ATIS-1000074] for TN signing.
* Certificate Provisioning Service – Defined in [ATIS-1000074] for TN signing.
* Secure Telephone Identity Certificate Repository (STI-CR) – Defined in [ATIS-1000074] for TN signing.

**NS/EP NGN-PS Elements**

* Telephone Application Server (TAS): This element represents NS/EP processing and routing. It is viewed as the element responsible for WPS type functions including WPS call authentication.
* NS/EP NGN-PS Application Server (NS/EP NGN-PS AS) – This element represents NS/EP NGN-PS processing and routing. It is viewed as the element responsible for GETS type of functions including PIN authentication.
* RPH Authentication Service (RPH-AS) – This element represents the logical authentication service for SIP RPH signing defined in [IETF RFC 8443].

NOTE: The actual validation of the user device (i.e., for WPS) and user authentication (i.e., PIN) is part of the NS/EP NGN-PS process of the TAS and NS/EP NGN-PS AS respectively. The NS/EP authentication information is conveyed to the RPH-AS not shown in the reference model.

* RPH Verification Service (RPH-VS) - This element represents the logical verification service for SIP RPH signing defined in [IETF RFC 8443].

The focus of this document is on the RPH-AS and RPH-VS functionality and the relevant SIP signaling and interfaces.

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