Signature based Handling of Asserted information using Tokens

October 2015

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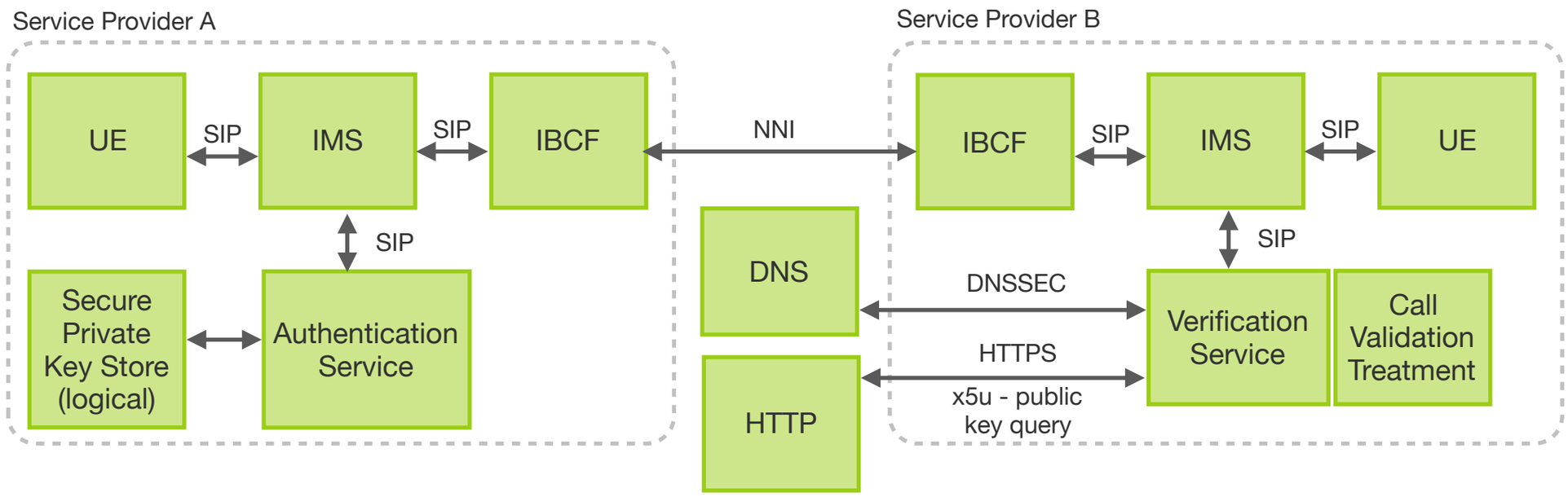
Overview

- SHAKEN will define the architecture of Verified Token and 4474bis based framework
- SHAKEN (phase 1) will define:
  - Authentication Service
  - Verifier
  - Originating Provider Certificate Management

Verified Token and 4474bis Overview

- Verified Token uses the JWT and JWS formats and defines a standard set of base claims and signature allowing secure cryptographic validation of the owner of the claims made, specifically targeting originating caller-id
- 4474bis defines how Verified Token is formatted in a SIP message using the identity header

Auth/Verify Service - Basic Call Flow



- Originate Call on UE, Authentication constructs one or more signatures using one of the following options:
  - 4474bis signature and adds identity header to SIP INVITE
  - 4474bis signature with full Verified Token added to identity header of SIP INVITE
  - Verified Token is applied to Message Body as a multi-part MIME
- Terminating network receives INVITE, fetches (likely highly cached) public key certificate from x5u claim and uses Validation Service to validate signature
- In addition, there are other mitigation techniques that can be used to perform service provider specific CVT (Call Validation Treatment)

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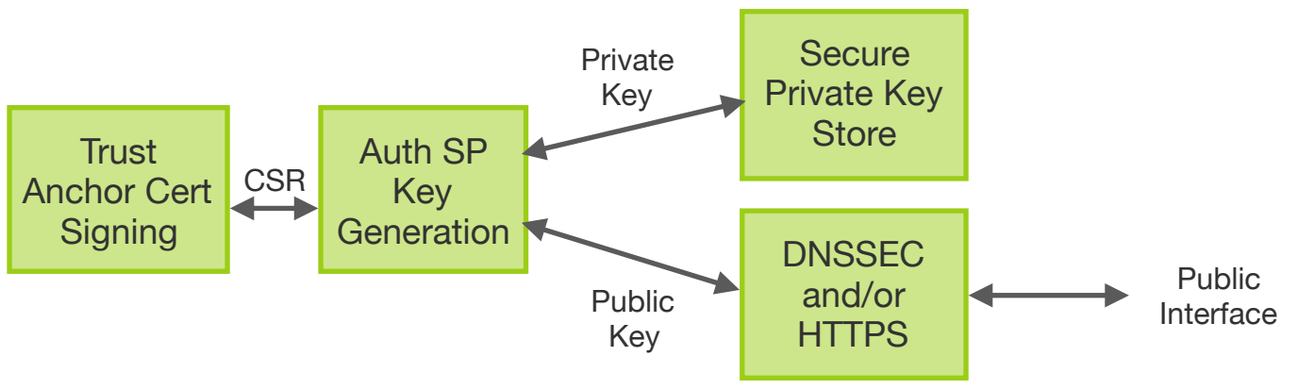
Originating SP Certificate Management



- Each provider will create a public key/private key X.509 certificate pair
- It will generate a CSR (Certificate Signing Request) to the chosen Trust Anchor or authority that can validate with absolute certainty that the requestor is an authorized PSTN provider
- The provider will receive back a signed public key and certificate chain with the public key of the Trust anchor.
- The provider will use the certificate chain as the public key certificate and distribute this public key via HTTPS and/or DNSSEC as indicated in the “x5u” claim used in the verified token.
- The validation of the signature and the certificate chain back to the trust anchor will be the trust mechanism for authenticating the originating providers certificate.