# STIR TNs for ACME

IETF **100**

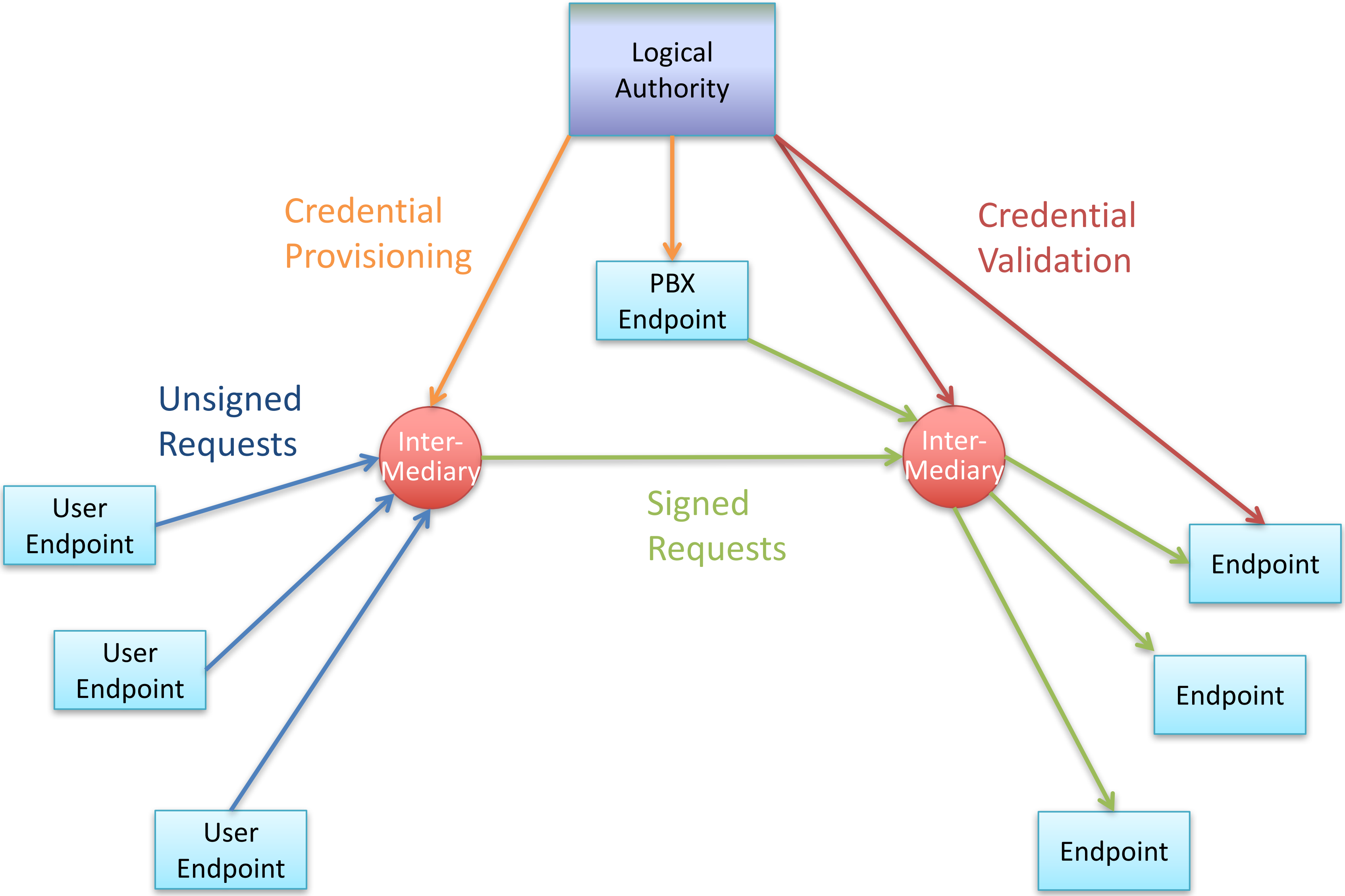
ACME WG

Jon - Singapore - Nov 2017

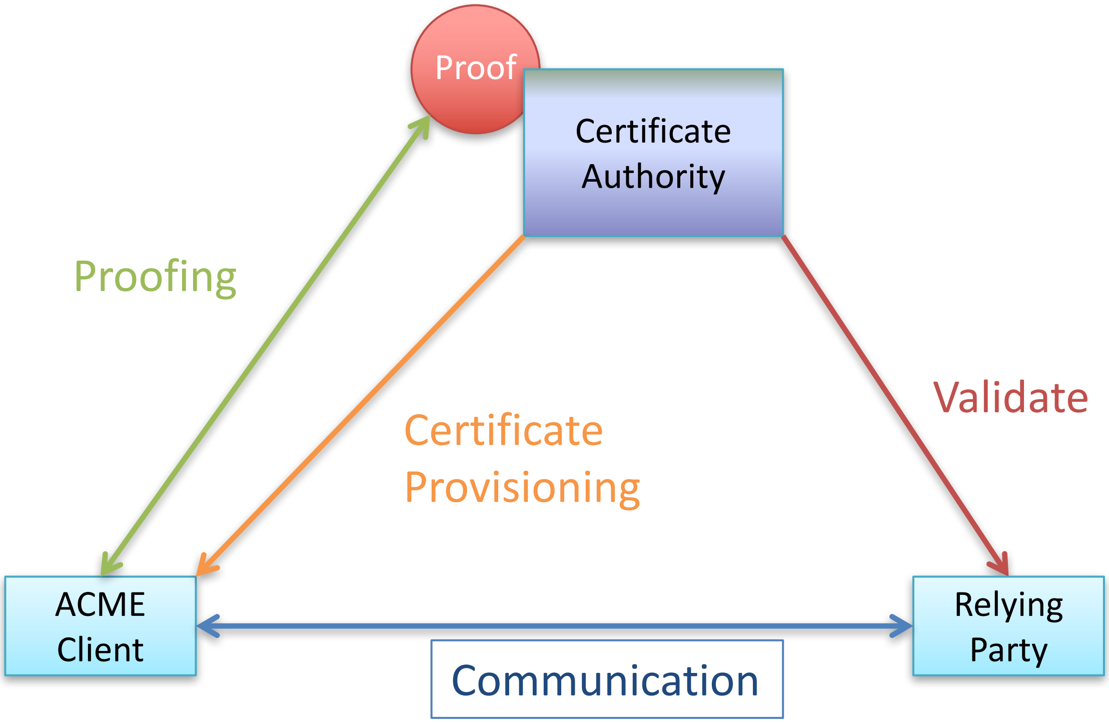
# STIR and ACME

- What is STIR? Secure Telephone Identity (Revisited)
  - ART Area WG
  - Providing cryptographic authentication for telephone calls
  - Detecting impersonation is crucial to blocking illegal robocalling and other attacks on the telephone network
- STIR uses certs to attest authority over telephone network resources
  - draft-ietf-stir-certificates
  - Supports certs with extensions for TNs and SPCs
  - We need ways to issue and provision these certs

# In-band STIR Logical Architecture



# ACME (through a STIR lens)



# What are interesting proofs?

- How to test effective control of a telephone number?
  - Return routability of SMS or similar mechanisms
  - Combined with some network data, maybe some crypto in SIM cards
    - Basic idea is in draft-ietf-acme-telephone
- Alternatively, we could use top-down attestation of assignment
  - This would require some kind of token
    - Carrier gives a token to an enterprise, who can redeem the token via ACME to get a cert for a TN
  - draft-ietf-acme-service-provider draft does this for SPCs

# Generic tokens for proofs

- This seems like something pretty generic
  - Surely any number of namespaces have authorities who could generate tokens
  - Provided the ACME server has some trust relationship with the authority
- draft-peterson-acme-authority-token
  - Framework for tokens that allow authorities trusted by the CA to attest ownership for names
    - CA can thenissue certs via ACME for particular names
  - Need some sort of typing mechanism for tokens, and a means to contact authorities

# A Strawman

```
"challenges": [
        {
          "type": "token-01",
          "token-type": "TNAuthList-JWT",
          "token-authority": "https://authority.example.org/authz",
          "url": "https://boulder.example.com/authz/asdf/0"
          "token": "IlirfxKKXAsHtmzK29Pj8A" }
        ]
```

- The token-type would be governed by some sort of registry
  - Specifies the syntax of the token: maybe a JWT, or whatever
- The token-authority lets you know who to contact to get a token
  - Optional, may be well known for some use cases

# Next Steps

- Need to get some agreement on the right way forward for this
- Hopefully build it into both the ACME STIR drafts
  - For TNs and for SPCs