

An Overview of New Work from the Non-IP Call Authentication Task Force

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Agenda

- New Work from the Non-IP Call Authentication Task Force
- Out-of-Band SHAKEN
- STI-OOBS
- STI-CPS API
- TransNexus STI-CPS Design
- Demonstration
- Questions and Answers

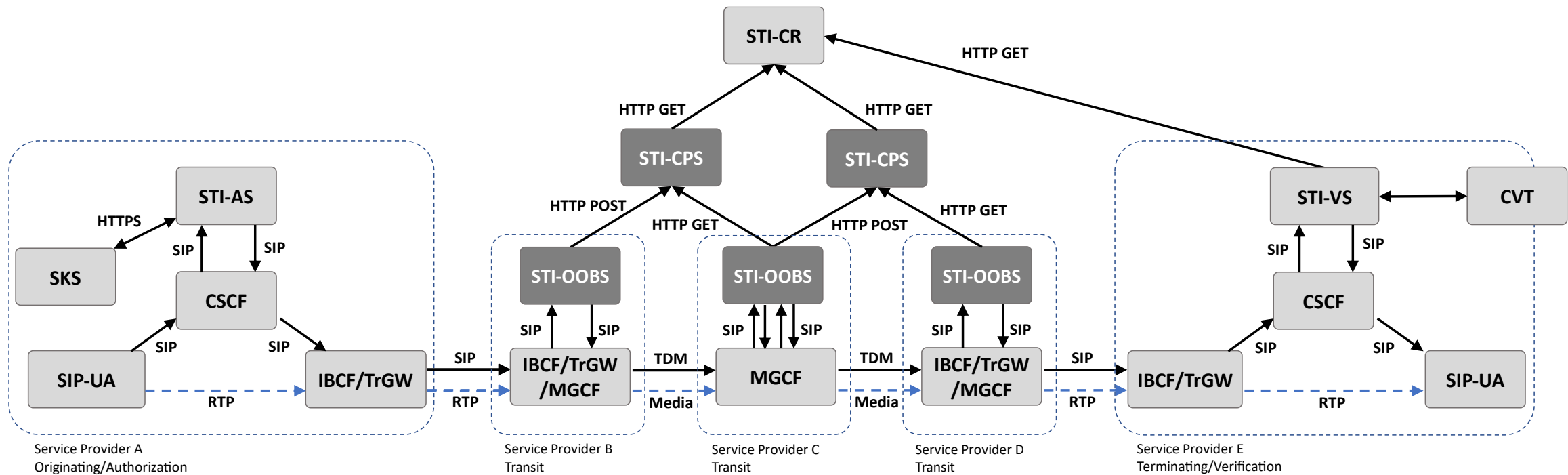
New Work from the NIPCA Task Force

- Two new standards:
 - *Out-of-Band PASSporT Transmission Between Service Providers that Interconnect using TDM (Hop-by-Hop)*
 - Sent to 60-day letter ballot on 2024-09-16
 - *STI-CPS Discovery for Out-of-Band PASSporT Transmission Involving TDM Networks (STI-CPS Discovery)*
- New revision of technical report:
 - *Alternatives for Call Authentication for Non-IP Traffic Version 3*
 - Sent to 60-day letter ballot on 2024-09-16
- New technical report:
 - *Viability of Non-IP Call Authentication Standards*
 - Expected to be sent to 30-day letter ballot on 2024-10-21

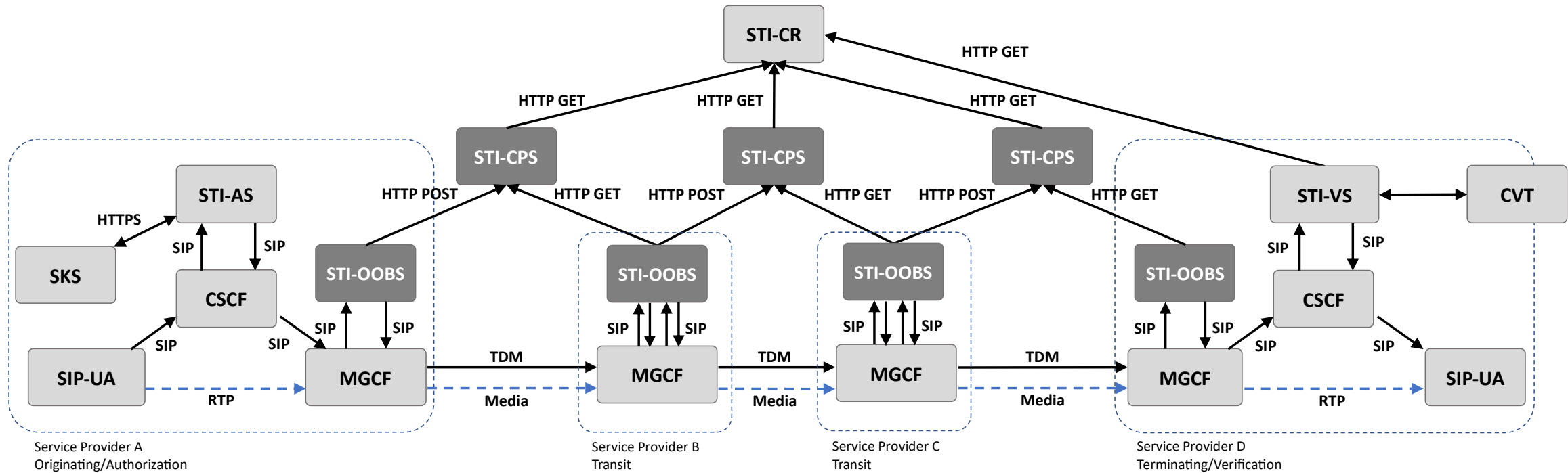
Out-of-Band SHAKEN

- SHAKEN, as defined in ATIS-1000074, only works for SIP end-to-end calls
- Out-of-Band SHAKEN enables SHAKEN for calls that use non-IP interconnects
- The SHAKEN PASSporT is transported over the internet for the portions of the call flow that use non-IP
- Multiple standards
 - STI-CPS Broadcast – published in 2021
 - STI-CPS Discovery – under development
 - **Hop-by-Hop – in letter ballot**

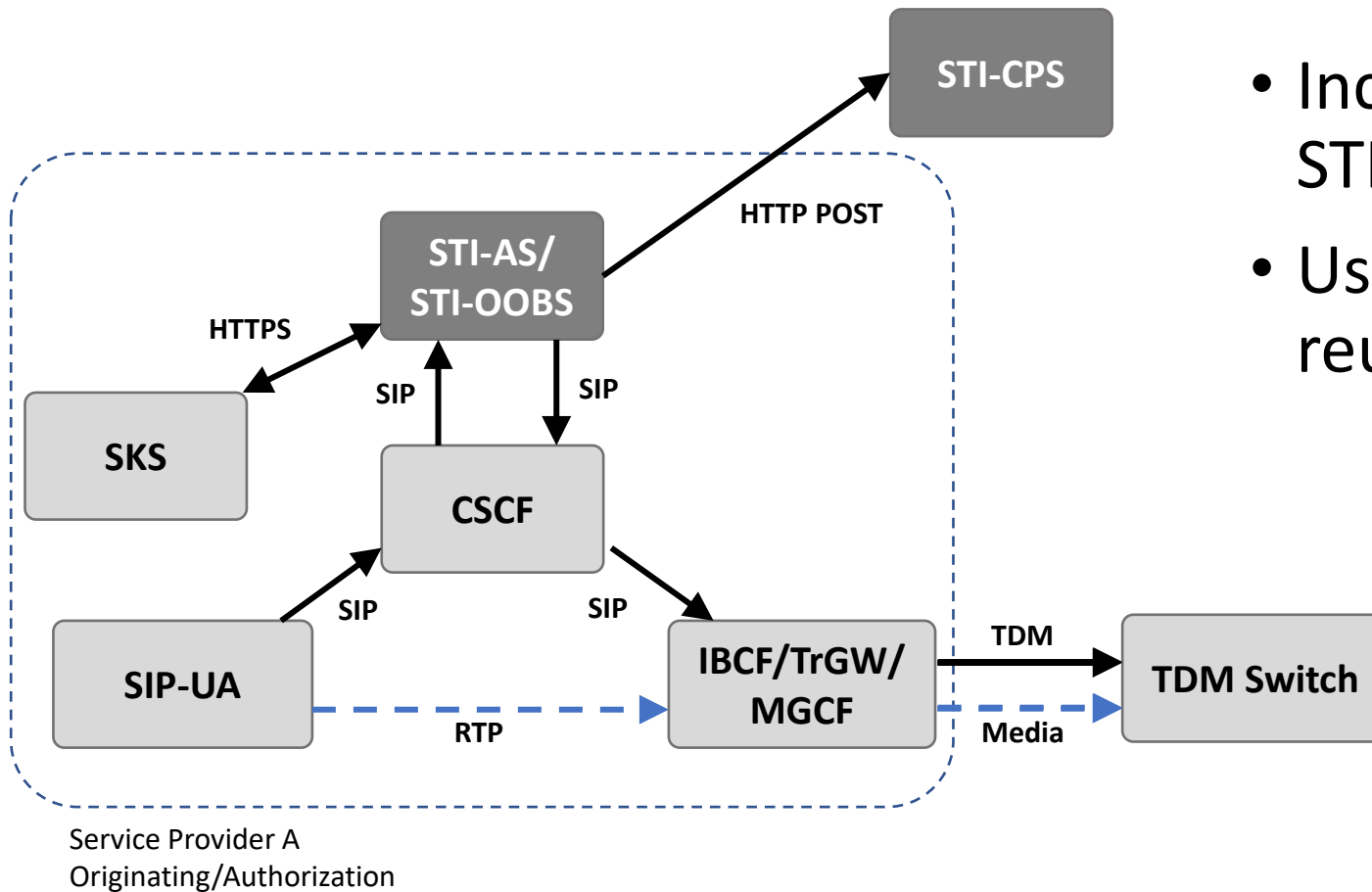
Hop-by-Hop Out-of-Band SHAKEN Call Flow 1



Hop-by-Hop Out-of-Band SHAKEN Call Flow 2



STI-OOBS Implementation



- Incorporate the STI-OOBS into the STI-AS/STI-VS
- Use HTTP/2 for TCP connection reuse and multiplexing

STI-CPS API

- Three endpoints
 - Health Check
 - Publish PASSporT(s)
 - Retrieve PASSporT(s)
- JSON Web Token (JWT) authentication
 - Signed with SHAKEN certificate

STI-CPS Health Check Request

GET /health HTTP/1.1
Host: cps.example.com
Content-Length: 0

STI-CPS Health Check Response

HTTP/1.1 200 OK

Content-Type: application/json

Content-Length: 29

```
{"status":200,"message":"OK"}
```


STI-CPS Publish Authentication Token

Header

```
{  
  "alg": "ES256",  
  "x5u": "https://certificates.example.com/example.pem"  
}
```

Payload

```
{  
  "iat": 1608048420,  
  "exp": 1608048425,  
  "action": "publish",  
  "passports": "sha256-YO4Hq/xE6mkCeuPoYYck5Pt6vACmfbzNfdi6aeq95dA=",  
  "spc": "1234",  
  "iss": "1234",  
  "aud": "cps.example.com",  
  "jti": "ebcbd7f2-b78b-4019-bf83-32c2517e6059",  
  "dest": {  
    "tn": [  
      "19032469103"  
    ]  
  },  
  "orig": {  
    "tn": "12013776051"  
  }  
}
```

STI-CPS Publish Response

HTTP/1.1 201 Created

Content-Type: application/json

Content-Length: 34

```
{"status":201,"message":"Created"}
```


STI-CPS Retrieve Authentication Token

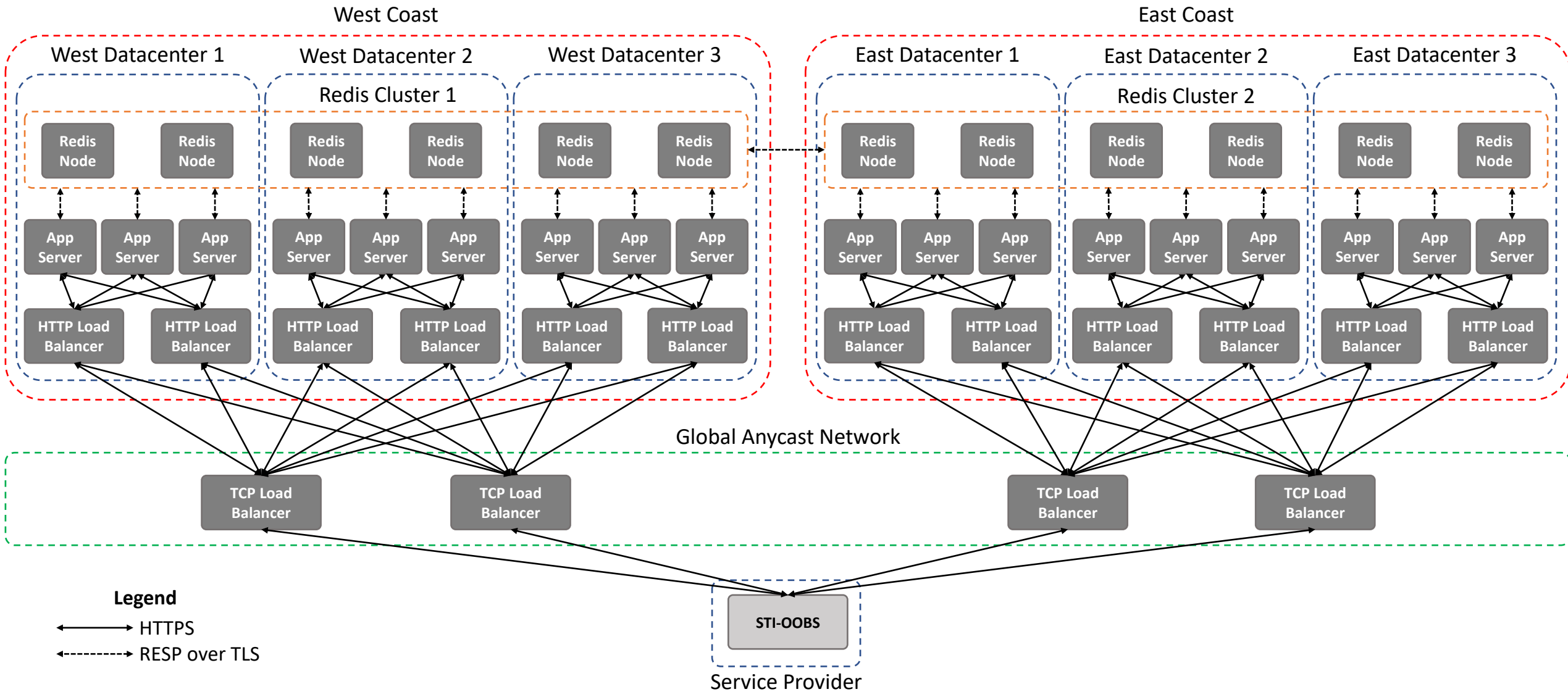
Header

```
{  
  "alg": "ES256",  
  "x5u": "https://certificates.example.com/example.pem"  
}
```

Payload

```
{  
  "iat": 1608048420,  
  "action": "retrieve",  
  "spc": "1234",  
  "iss": "4321",  
  "aud": "cps.example.com",  
  "jti": "ebcbd7f2-b78b-4019-bf83-32c2517e6059",  
  "dest": {  
    "tn": [  
      "19032469103"  
    ]  
  },  
  "orig": {  
    "tn": "12013776051"  
  }  
}
```


TransNexus STI-CPS Design



Demonstration

- STI-OOBS Sample
 - Open Source (MIT license)
 - <https://github.com/TransNexus/sti-oobs-sample>

Questions and Answers

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