Rich Call Data PASSporT extension

draft-ietf-stir-passport-rcd-05

STIR Working Group
IETF106

COMCAST

Overview of update

- Based on very good input of virtual meeting new draft includes
  - Text on usage, specifically 3 modes
    - Basic signing with direct content
    - A MUST for signing with integrity claim digest when there is any URLs as part of RCD
    - A mechanism for explicitly limiting the integrity digest to the certificate for PASSporT signers that are non-authoritative over approving the content of the RCD specifically
- For call-info specific integration it was agreed to define more specific call-info usage so a new draft, draft-wendt-sipcore-call-info-rcd-00 was submitted that specifically will define a new call-info purpose of "jcard".
- Compact form support was added as well based on reconstructing "rcd" claim from call-info headers and display-name parameter.
- Support for other call-info tokens was removed.

Example of “rcd" PASSporT with “nam”

```
Protected Header
{
   "alg":"ES256",
   "typ":"passport",
   “ppt”:”rcd”,
   "x5u":"https://biloxi.example.org
      /biloxi.cer”
}
Payload
{
   "orig":{"tn":"12025551000"},
   "dest":{"tn":"12025551001"},
   “iat”:1443208345,
   “rcd":{"nam":"James Bond”}
}
```

Example of “rcd" PASSporT with “nam”

```
Protected Header
{
   "alg":"ES256",
   "typ":"passport",
   “ppt”:”rcd”,
   "x5u":"https://biloxi.example.org
      /biloxi.cer”
}
Payload
{  "orig":{"tn":"12025551000"},
   "dest":{"tn":"12155551001"},
   "iat":1443208345,
   "rcd":{"nam":"James Bond”,
      "jcd":["vcard",[["version",{},"text","4.0"],
       ["fn",{},"text", "James Bond"],
       ["n",{},"text",["Bond","James","","","Mr."]],
       ["adr",{"type":"work"},"text",
         ["","","3100 Massachusetts Avenue NW","Washington","DC","20008","USA"]
       ],
       ["email",{},"text","007@mi6-hq.com"],
       ["tel",{"type":["voice","text","cell"],"pref":"1"},"uri",
        "tel:+1-202-555-1000"],
       ["tel",{"type":["fax"]},"uri","tel:+1-202-555-1001"],
       ["bday",{},"date","19241116"],
       ["logo",{},"uri",
       "https://upload.wikimedia.org/wikipedia/en/c/c5/Fleming007impression.jpg"
       ]]]}}
}
```

Integrity claim

- Provides both a direct and indirect set of mechanisms for verification/approval/policy enforcement of the contents of the rich call data
- “rcdi” - a digest of a canonical form of the “rcd” claim in its entirety, including concatenation of the contents of the URLs.
- Can use JWTConstraints to enforce use of “rcdi” claim and a specific digest value

Integrity claim

- Construction:
  - Pick algorithm for digest
  - Create canonicalized “rcd”
    - lexicographic order of keys
    - white space removal
    - concatenate the base64 encoded content of the resources pointed to by URLs in order of their appearance in re-ordered keys
    - create digest of resulting string

Example of “rcd" PASSporT with “nam”, “jcl” and “rcdi”

```
Protected Header
{
   "alg":"ES256",
   "typ":"passport",
   “ppt”:”rcd”,
   "x5u":"https://biloxi.example.org
      /biloxi.cer”
}
Payload
{  "orig":{"tn":"12025551000"},
   "dest":{"tn":"12155551001"},
   "iat":1443208345,
   "rcd":{"nam":"James Bond”,"jcl":"https://example.org/james_bond.json"},
   "rcdi":"sha256-H8BRh8j48O9oYatfu5AZzq6A9R6dQZngK7T62em8MUt1FLm52t+eX6xO"
}
```

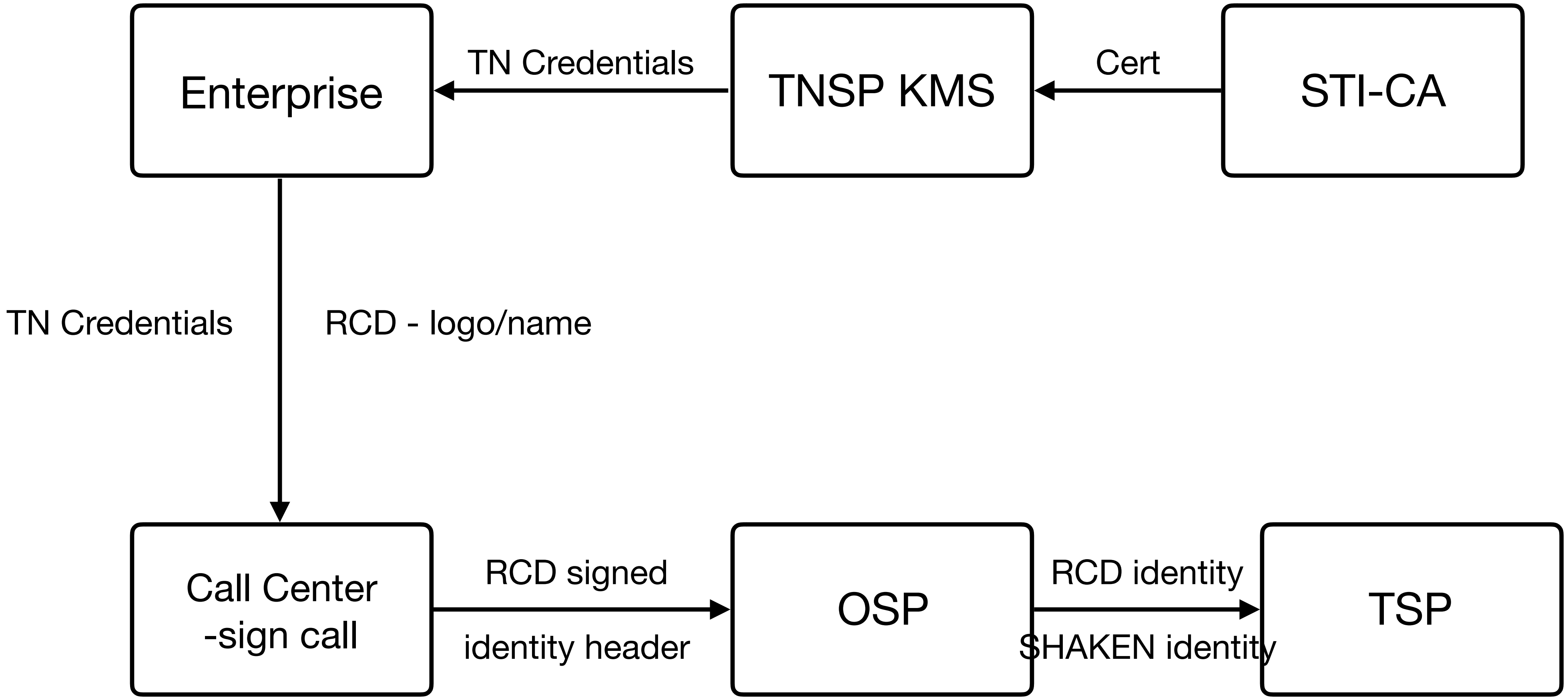
Example of ‘rcdi’ claim construction

```
Example "rcd" claim with URL:
"rcd": { "nam" : "James Bond",
         “jcl" : "https://example.org/james_bond.json"
       }

Example "rcd" input digest string:
{"nam":"James Bond”,"jcl":"https://example.org/james_bond.json"};
  ONG##*NCCCDJK123...KLJASlkJlkjsadlf2e3

Example "rcdi" claim:
"rcdi":"sha256-u5AZzq6A9RINQZngK7T62em8M"
```

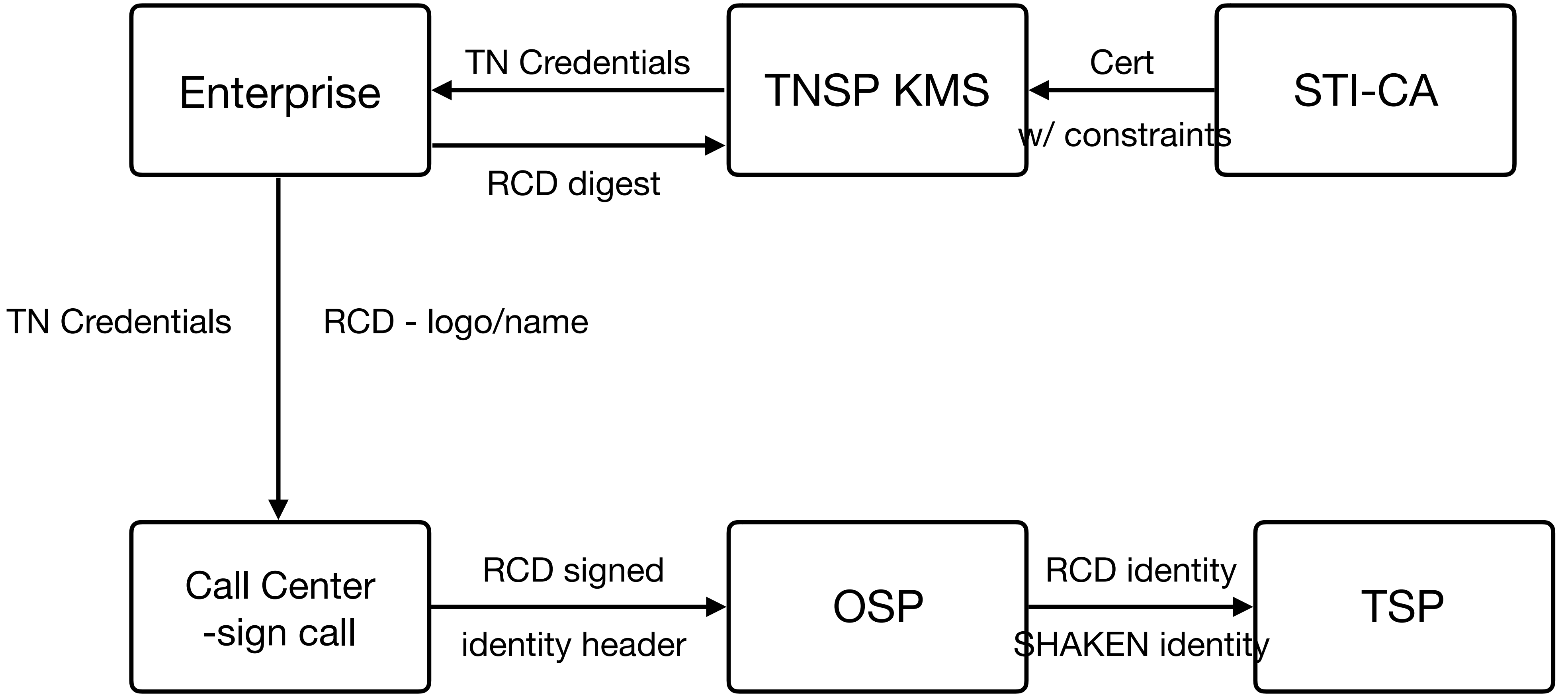
JWT Constraints

- In order to enforce the contents of the “rcd” in delegated and other indirect flows STIR certs including JWT Constraints can be used in the STIR certificate
- JWT Constraints would be as follows:
  - a "mustInclude" for the "rcd" claim
  - a "permittedValues" equal to the created "rcdi" claim value string.

Example


Enterprise
TN Credentials
TNSP KMS
Cert
STI-CA
TN Credentials
RCD - logo/name
Call Center
-sign call
RCD signed
identity header
OSP
RCD identity
SHAKEN identity
TSP

Example - with Constraints


Enterprise
TN Credentials
RCD digest
TNSP KMS
Cert
w/ constraints
STI-CA
TN Credentials
RCD - logo/name
Call Center
-sign call
RCD signed
identity header
OSP
RCD identity
SHAKEN identity
TSP