Trust fabric for wallets

Trust & Identity Incubator Final Demo

Demo, Online

02 Mai 2024

Public (PU)

GN5-1

Why?

- Europe is working towards a wallet-based identity ecosystem.
- Two protocols are in the core of the specification: ISO 18013-5:2021 (mDL) and OpenID4VC + Verifiable Credentials.
- The current version of the ARF has not yet decided on the trust fabric. However, for a real world ecosystem, it is clear an interoperable trust fabric will be needed.
- The OpenID Federation specification seems to have many characteristics that would allow such a wallet ecosystem to be defined.

This activity will investigate and test the use of the OpenID Federation protocol as a trust fabric for a wallet ecosystem.

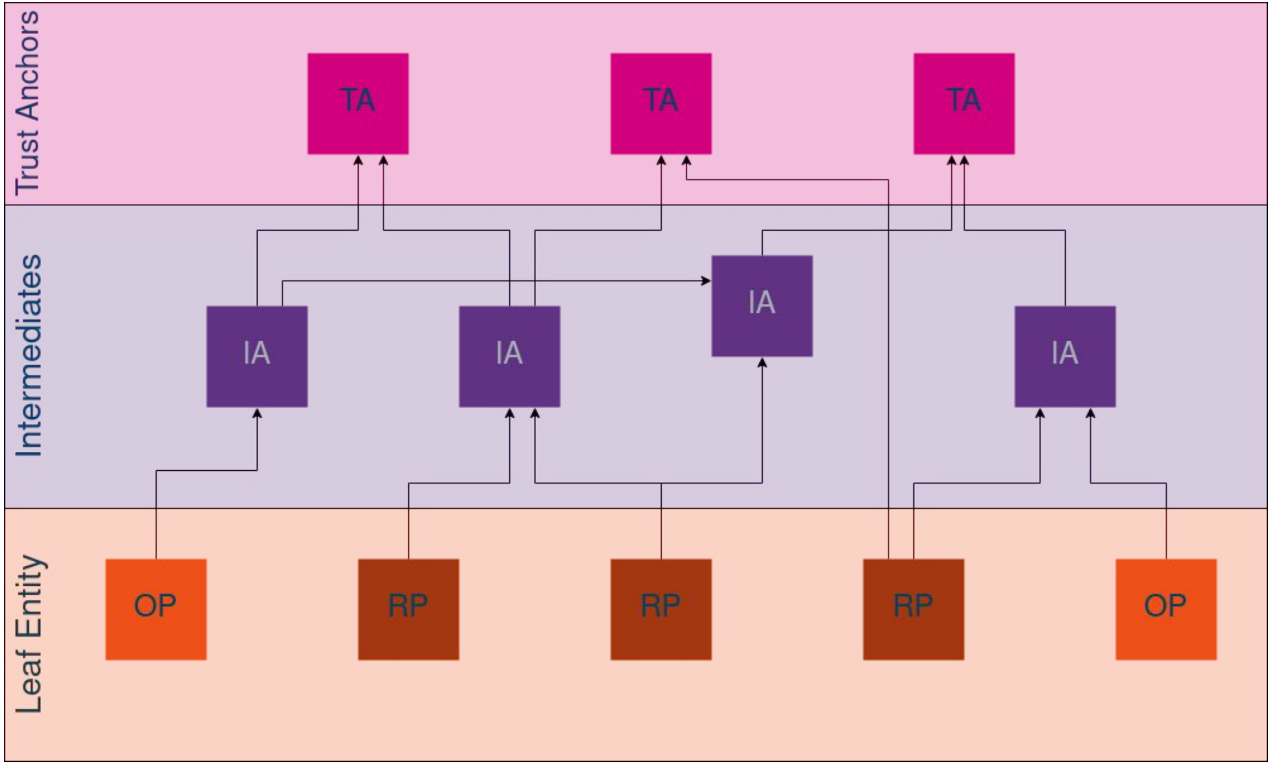
Wallet instance attestation

-> How to know the Wallet asking for credentials is fit for purpose?

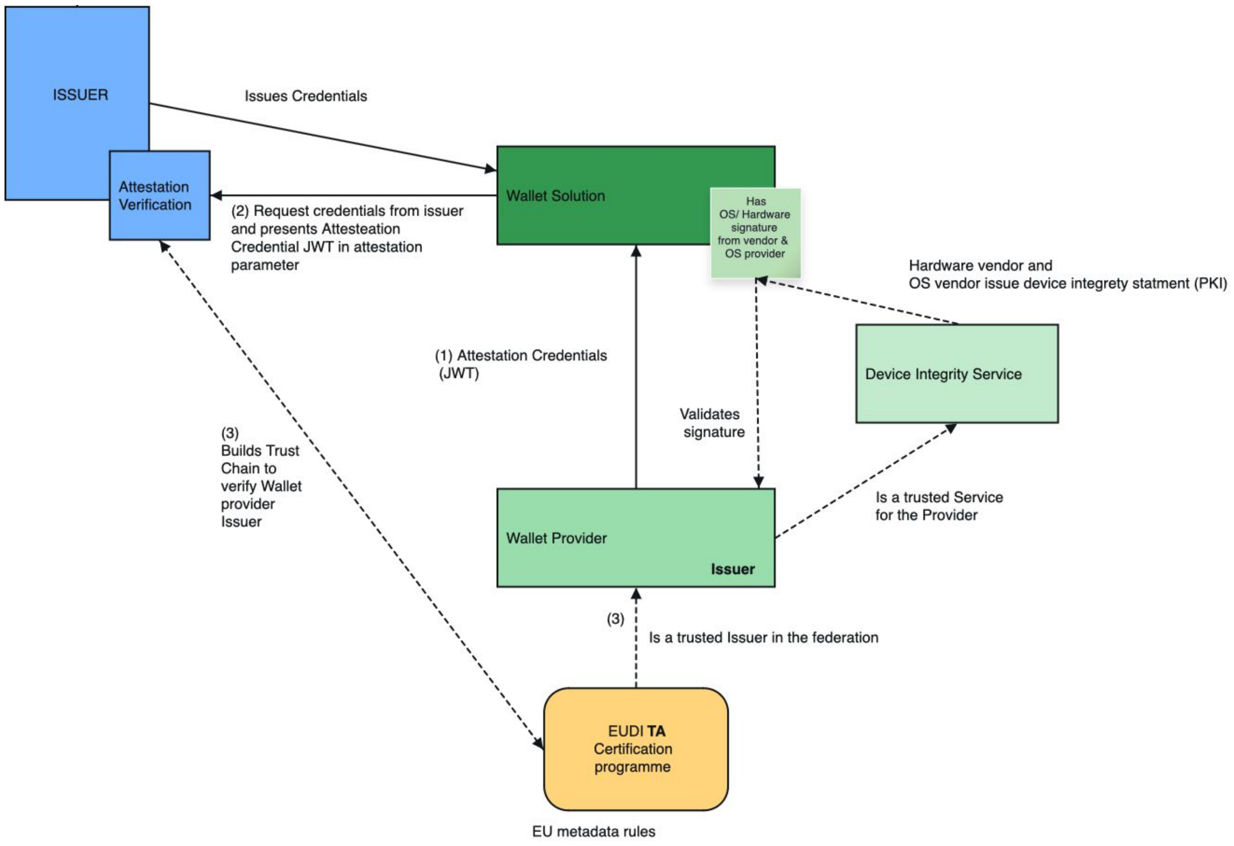
- The wallet provider validates the wallet(software) and possibly OS is correct
- But we do not want to depend on big tech to do it for us each and every time
- We may have additional rules, depending on Wallet capabilities
- We do not want to create wallet ‘islands’

Which components of OpenID Federation are used to express what?

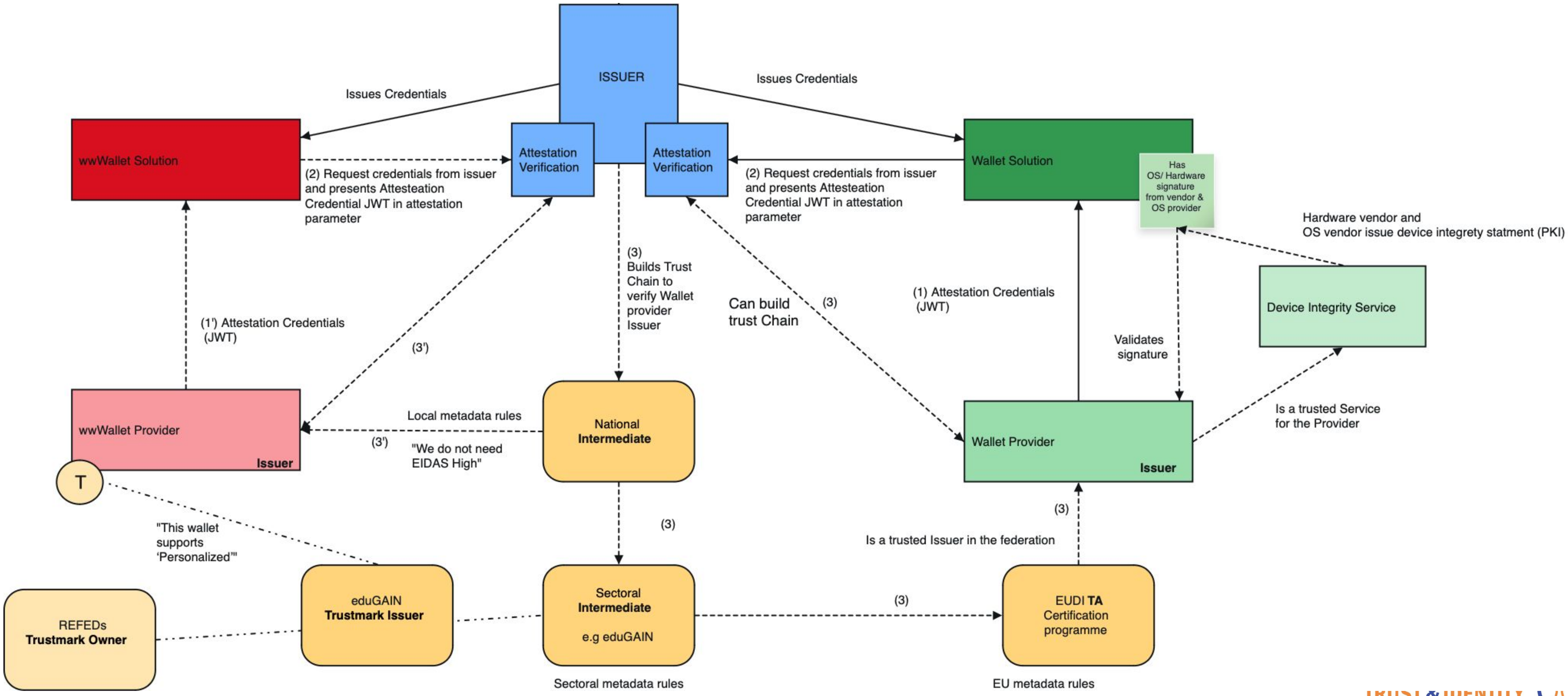
Wallet Attestation Scenario - EUDI only



Wallet Attestation Scenario - EUDI only


ISSUER
Attestation Verification
Issues Credentials
Wallet Solution
Has OS/ Hardware signature from vendor & OS provider
(2) Request credentials from issuer and presents Attesteation Credential JWT in attestation parameter
Hardware vendor and
OS vendor issue device integrety statment (PKI)
(1) Attestation Credentials (JWT)
Device Integrity Service
Validates signature
(3)
Builds Trust Chain to verify Wallet provider Issuer
Is a trusted Service for the Provider
Wallet Provider
Issuer
(3)
Is a trusted Issuer in the federation
EUDI TA Certification programme
EU metadata rules

Wallet Attestation Scenario - EUDI and other wallets



ISSUER

Issues Credentials

Issues Credentials

wwWallet Solution

Attestation Verification

Attestation Verification

Wallet Solution

Has OS/ Hardware signature from vendor & OS provider

(2) Request credentials from issuer and presents Attesteation Credential JWT in attestation parameter

(2) Request credentials from issuer and presents Attesteation Credential JWT in attestation parameter

Hardware vendor and OS vendor issue device integrety statment (PKI)

(3) Builds Trust Chain to verify Wallet provider Issuer

Can build trust Chain

(3)

(1) Attestation Credentials (JWT)

Device Integrity Service

(1') Attestation Credentials (JWT)

(3')

Validates signature

Local metadata rules

wwWallet Provider

Issuer

National Intermediate

(3')

"We do not need EIDAS High"

Wallet Provider

Issuer

Is a trusted Service for the Provider

T

(3)

(3)

"This wallet supports ‘Personalized’"

Is a trusted Issuer in the federation

REFEDs **Trustmark Owner**

eduGAIN **Trustmark Issuer**

Sectoral **Intermediate**

e.g eduGAIN

(3)

EUDI **TA** Certification programme

Sectoral metadata rules

EU metadata rules

Existing trust framework

- eduGAIN policy
- REFEDs specifications evaluation: https://edu.nl/wye4g

REFEDs specification

The information from the specifications is distributed in two ways:

- Entity metadata 😓
- As part of the transaction 😁

Personalized Access v.2

(And "Research and Scholarship", "Anonymous Access" & "Pseudonymous Access")

The following was noted:

- The layout needs significant changes
- Use of SAML specific jargon, including “Entity Category”
- Contact details in OIDC specification only allow for a simple multivalued list of strings.
  -> proposal in github suggests a new claim, "contacts_detailed", supporting the same granularity as is used in the SAML implementation of the specification.
- It is not possible to have the same Trustmark exist both as a self-issued and at the same time as issued by a trustmark issuer
- Well developed mechanism to delegate the issuance and ownership of Trustmarks.
- Introduce a personalized scope to streamline the exchange of personal data

An example of what an adopted version of the specification might look like:
https://github.com/surfnet-niels/REFEDs-specifications/blob/main/personalized.md
(Please note: the above is NOT a proposal to actually change the specification!)

RAF, MFA, SFA and SIRTFI

Assurance Framework

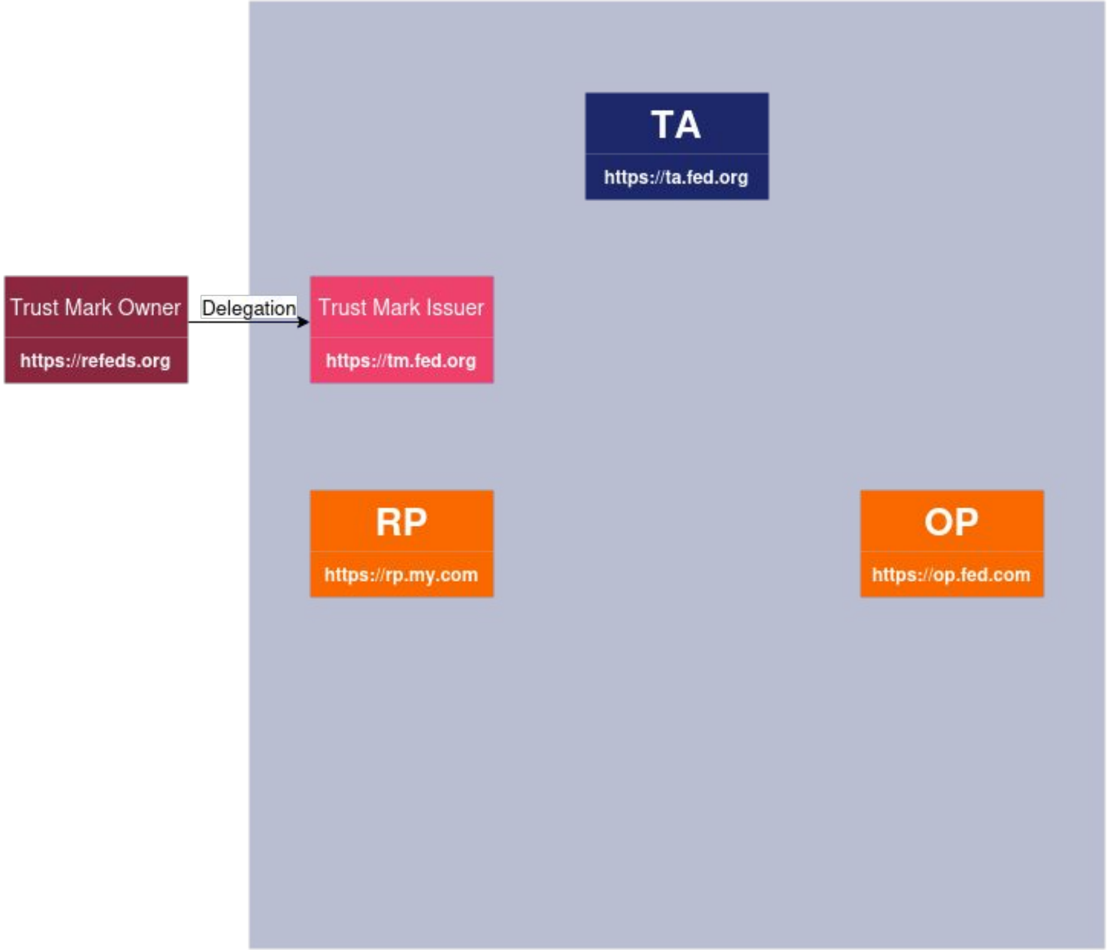
- The assurance profile already has a provision (section 7) on how to use the specification with OIDC.
- All statements which are part of this specification are expressed as claim values.

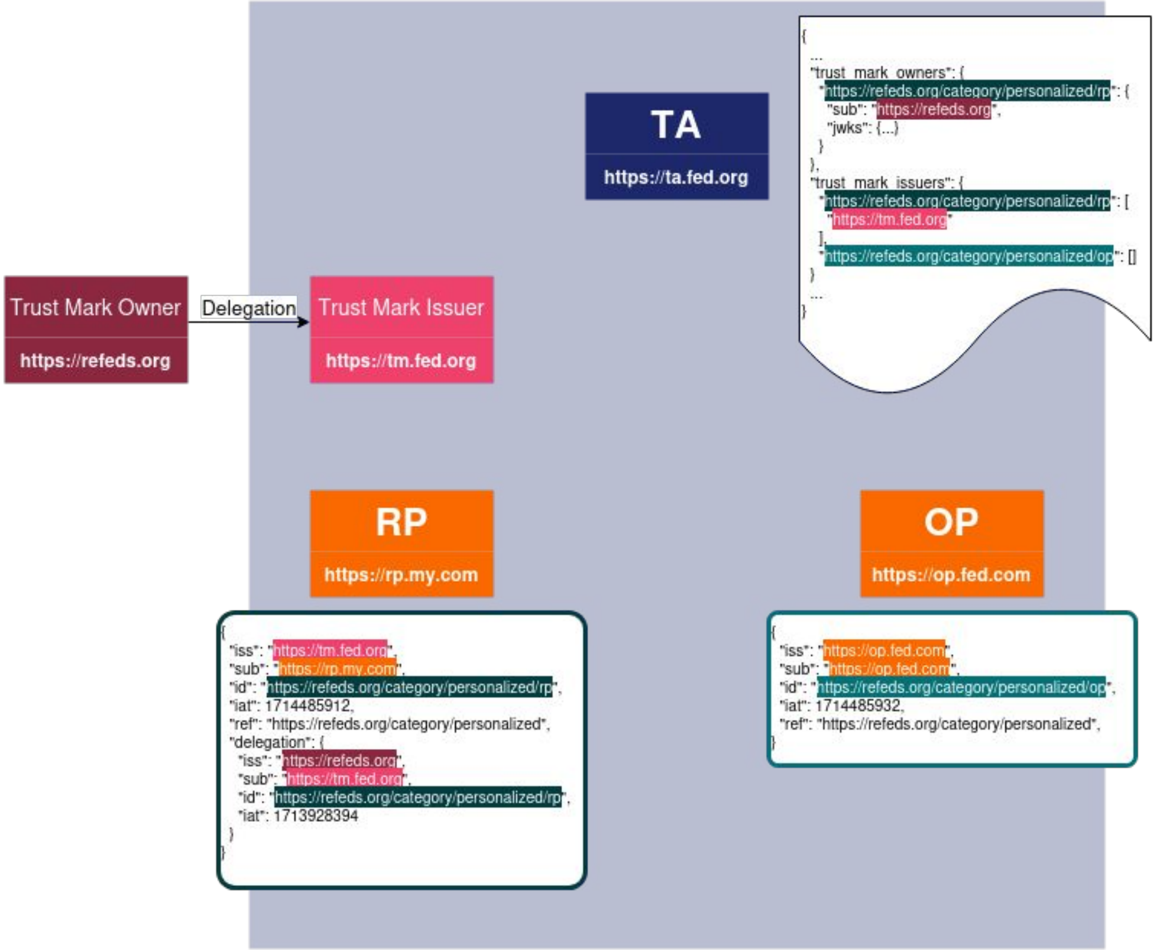
MFA and SFA framework

- The Multi- and Single Factor Authentication profile express all statements at transaction time.
- Both specifications already describe how to use these both in the SAML and in OIDC.
- In a wallet ecosystem, it might be relevant to transport this MFA or SFA information as part of a verifiable credentials statement, perhaps by extending RAF

SIRTFI

- The SIRTFI specification leverages metadata to signal compliance for both SPs/RP as well as IdP/OP.
- All of the challenges identified with 'Personalized Access' apply
- The OIDC specification supports the concept of contact details, but only as a simple multivalued list of strings. The SIRTFI specification mandates the presence of a security contact, as described in the Security Contact specification. To resolve this issue, a new claim, "contacts_detailed", could support the required granularity that is needed.


TA
https://ta.fed.org
Trust Mark Owner
https://refeds.org
Delegation
Trust Mark Issuer
https://tm.fed.org
RP
https://rp.my.com
OP
https://op.fed.com



```
{
 ...
 "trust_mark_owners": {
  "https://refeds.org/category/personalized/rp": {
   "sub": "https://refeds.org",
   "jwks": {...}
  }
 },
 "trust_mark_issuers": {
  "https://refeds.org/category/personalized/rp": [
   "https://tm.fed.org"
  ],
  "https://refeds.org/category/personalized/op": []
 }
 ...
}
```

```
{
 "iss": "https://tm.fed.org",
 "sub": "https://rp.my.com",
 "id": "https://refeds.org/category/personalized/rp",
 "iat": 1714485912,
 "ref": "https://refeds.org/category/personalized",
 "delegation": {
  "iss": "https://refeds.org",
  "sub": "https://tm.fed.org",
  "id": "https://refeds.org/category/personalized/rp",
  "iat": 1713928394
 }
}
```

```
{
 "iss": "https://op.fed.com",
 "sub": "https://op.fed.com",
 "id": "https://refeds.org/category/personalized/op",
 "iat": 1714485932,
 "ref": "https://refeds.org/category/personalized",
}
```

Thank You

www.geant.org

Co-funded by
the European Union