

Protect

ODRL Profile for Expressing Consent through Granular Access Control Policies in Solid

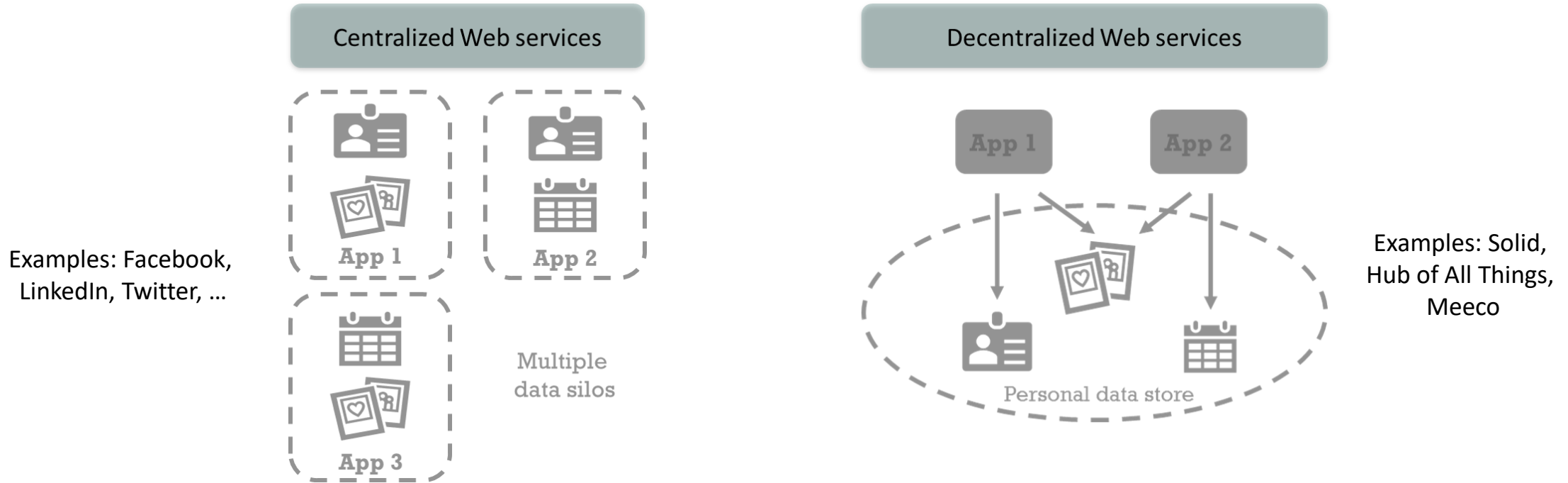
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This project that has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N°813497



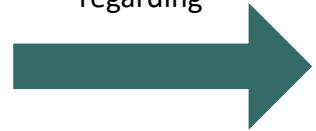


Motivation – Decentralization & GDPR



 **GDPR's Articles 13 and 14**

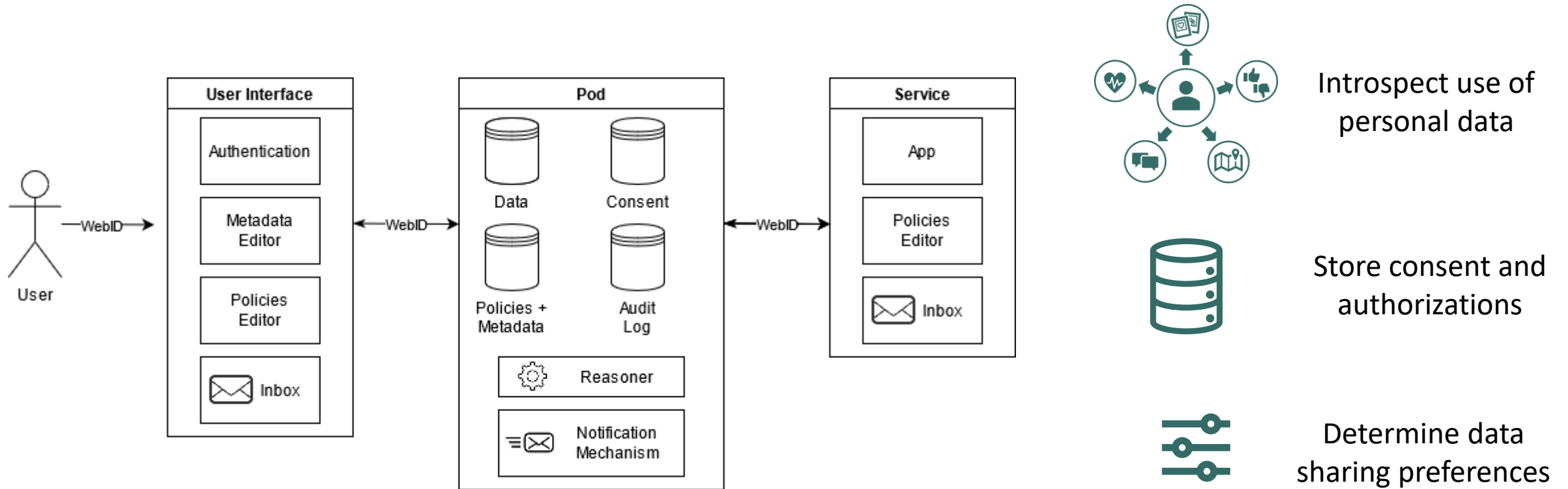
provide information regarding



- Identity
- Purpose
- Personal data categories
- Processing categories
- Legal bases
- Recipients



Consent

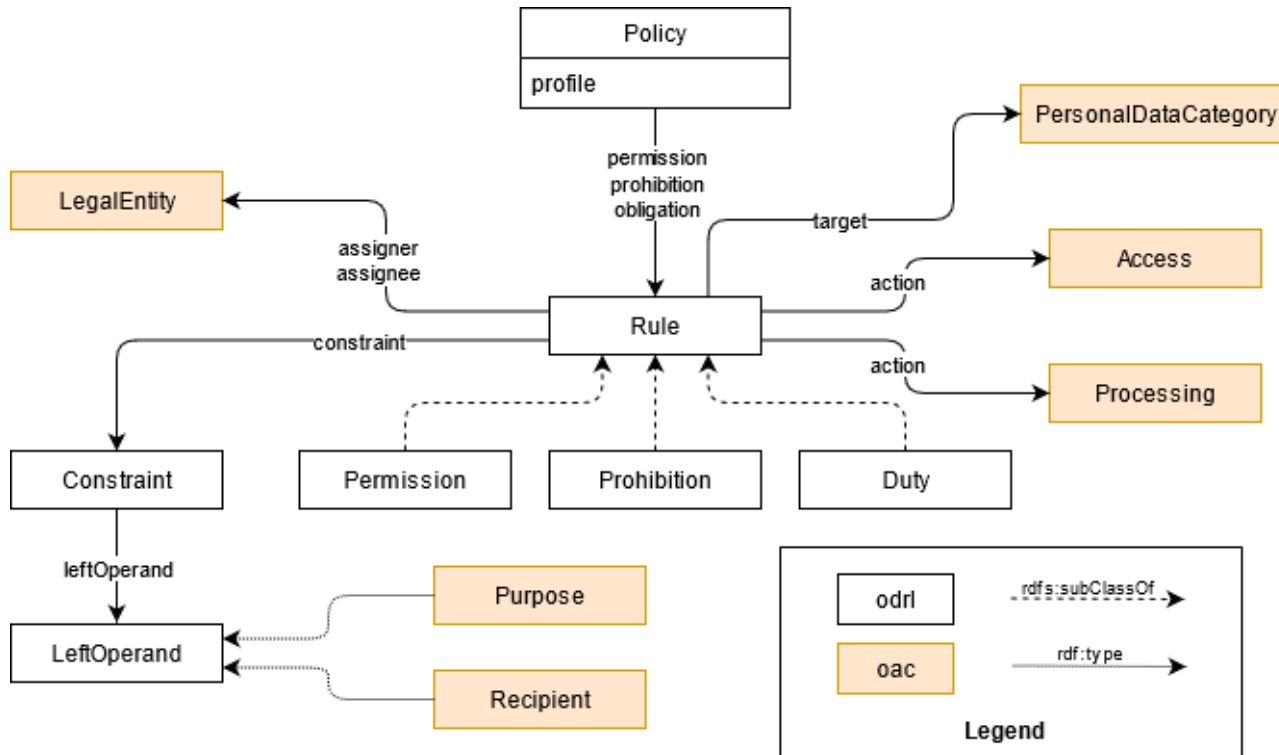


How can Solid's access control be extended to specify and enforce an individual's data sharing preferences (in compliance with the GDPR)?



OAC - ODRL profile for Access Control in Solid

<https://w3id.org/oac/>



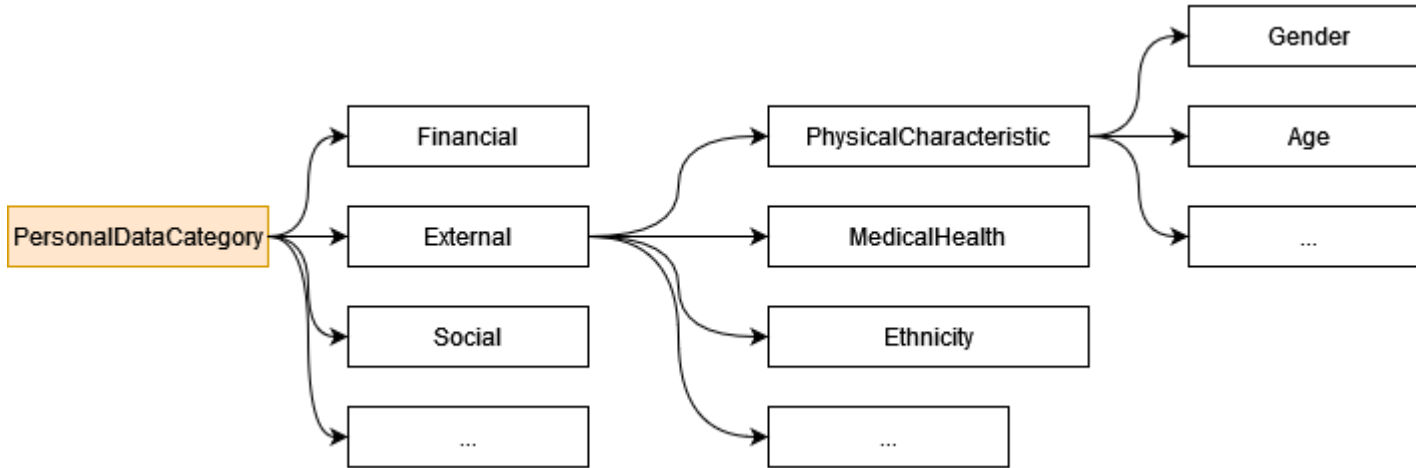
Extension of Solid's access control mechanism using the [ODRL specification](#) to define policies that express permissions and/or prohibitions associated with data stored in a Solid Pod and uses DPV as a controlled vocabulary to invoke specific privacy and data protection terms.

Requisites

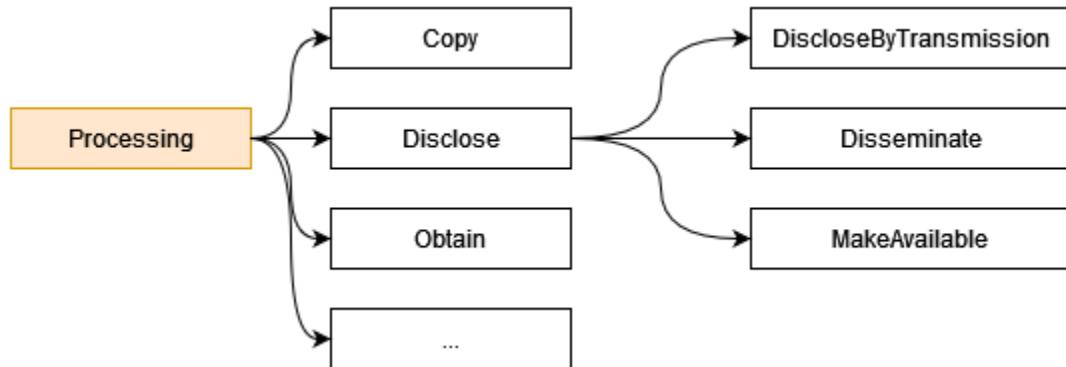
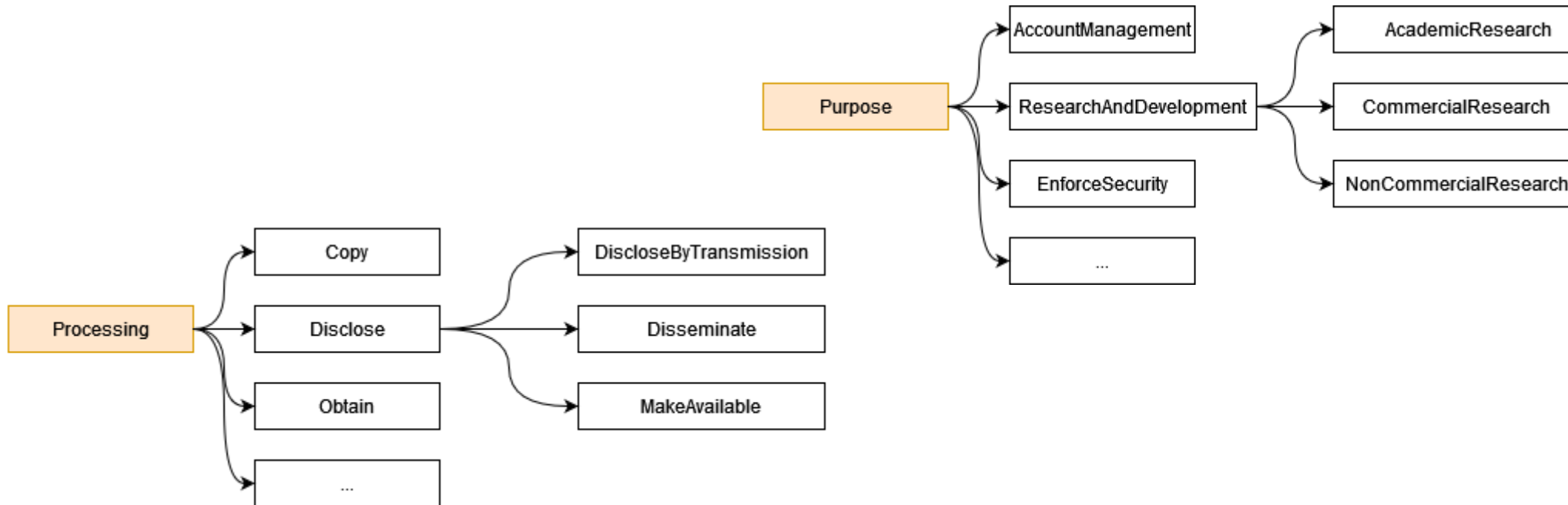
- R1. Support specifying preferences & data requests as policies.
- R2. Incorporate vocabulary specifying or aligned to legal concepts.
- R3. Support specifying permissions and prohibitions at arbitrary granularity.
- R4. Support identifying and resolving conflicts based on scope.
- R5. Store policies used to authorize access.
- R6. Support querying policies and authorizations for introspection of data use.



Using DPV as a set of taxonomies of data protection terms



Data Privacy Vocabulary (DPV)
<https://w3id.org/dpv>





Beatriz has full access to one of her web resources, located at [https:// beatriz.databox.me/docs/file1](https://beatriz.databox.me/docs/file1)

```
<#authorization1>
```

```
  a acl:Authorization;
```

WebID

```
  acl:agent <https://beatriz.databox.me/profile/card#me>;
```

```
  acl:accessTo <https://beatriz.databox.me/docs/file1>;
```

```
  acl:mode acl:Read, acl:Write, acl:Control.
```

Applying OAC to Solid



Beatriz has full access to one of her web resources, located at [https:// beatriz.databox.me/docs/file1](https://beatriz.databox.me/docs/file1)

```
<#authorization1>
  a acl:Authorization;
  acl:agent <https://beatriz.databox.me/profile/card#me>;
  acl:accessTo <https://beatriz.databox.me/docs/file1>;
  acl:mode acl:Read, acl:Write, acl:Control.
```

WebID

```
:policy-1 a odrl:Policy ;
  odrl:permission [
    a odrl:Permission ;
    odrl:assigner :beatriz-webID;
    odrl:target dpv:Contact ;
    odrl:action acl:Read ;
    odrl:constraint [
      odrl:leftOperand dpv:Purpose ;
      odrl:operator odrl:isA ;
      odrl:rightOperand dpv:ResearchAndDevelopment
    ]
  ] .
```



Applying OAC to Solid

Beatriz has full access to one of her web resources, located at <https://beatriz.databox.me/docs/file1>

```
<#authorization1>
  a acl:Authorization;
  acl:agent <https://beatriz.databox.me/profile/card#me>;
  acl:accessTo <https://beatriz.databox.me/docs/file1>;
  acl:mode acl:Read, acl:Write, acl:Control.
```

WebID

```
:policy-1 a odrl:Policy ;
  odrl:permission [
    a odrl:Permission ;
    odrl:assigner :beatriz-webID;
    odrl:target dpv:Contact ;
    odrl:action acl:Read ;
    odrl:constraint [
      odrl:leftOperand dpv:Purpose ;
      odrl:operator odrl:isA ;
      odrl:rightOperand dpv:ResearchAndDevelopment
    ]
  ]
].
```

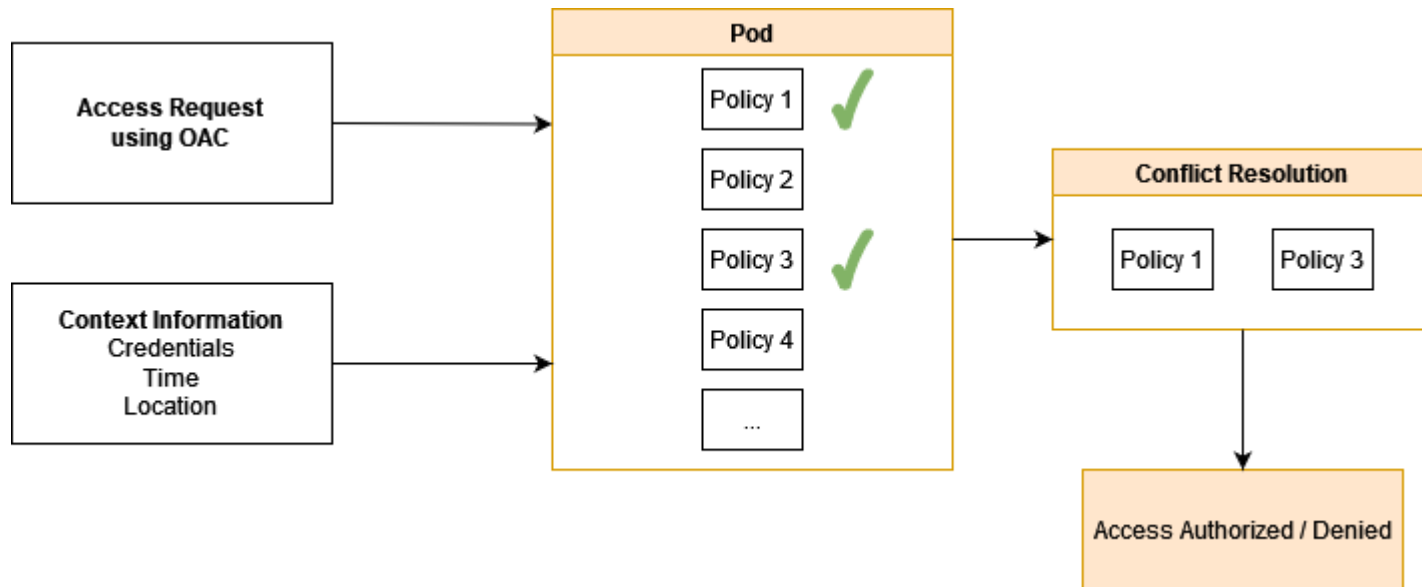
PROS

- **Opt-in:** by default the access to resources is not allowed unless the user gives active consent
- **Local to global** access permissions
- Easier to **update / revoke access**

CONS

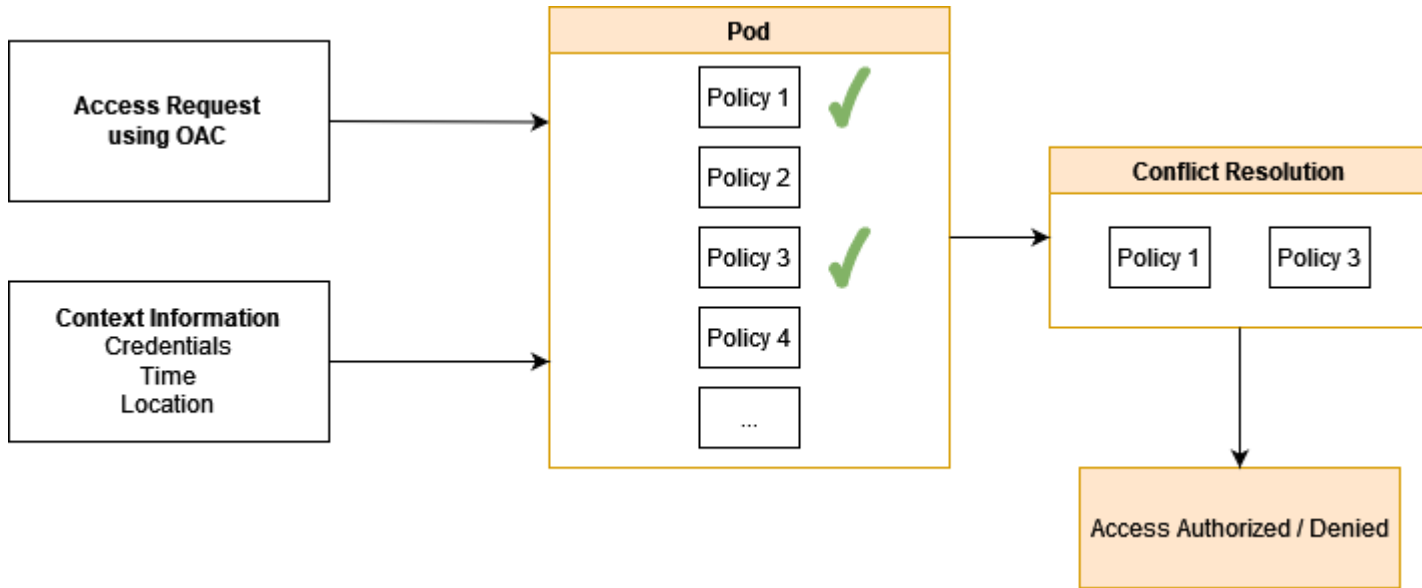
- Does not have a mechanism to specify specific **prohibitions**
- The user cannot specify access rules over specific **types of data or processing operations or purposes**
- Reliance on **Pod provider**

Applying OAC to Solid

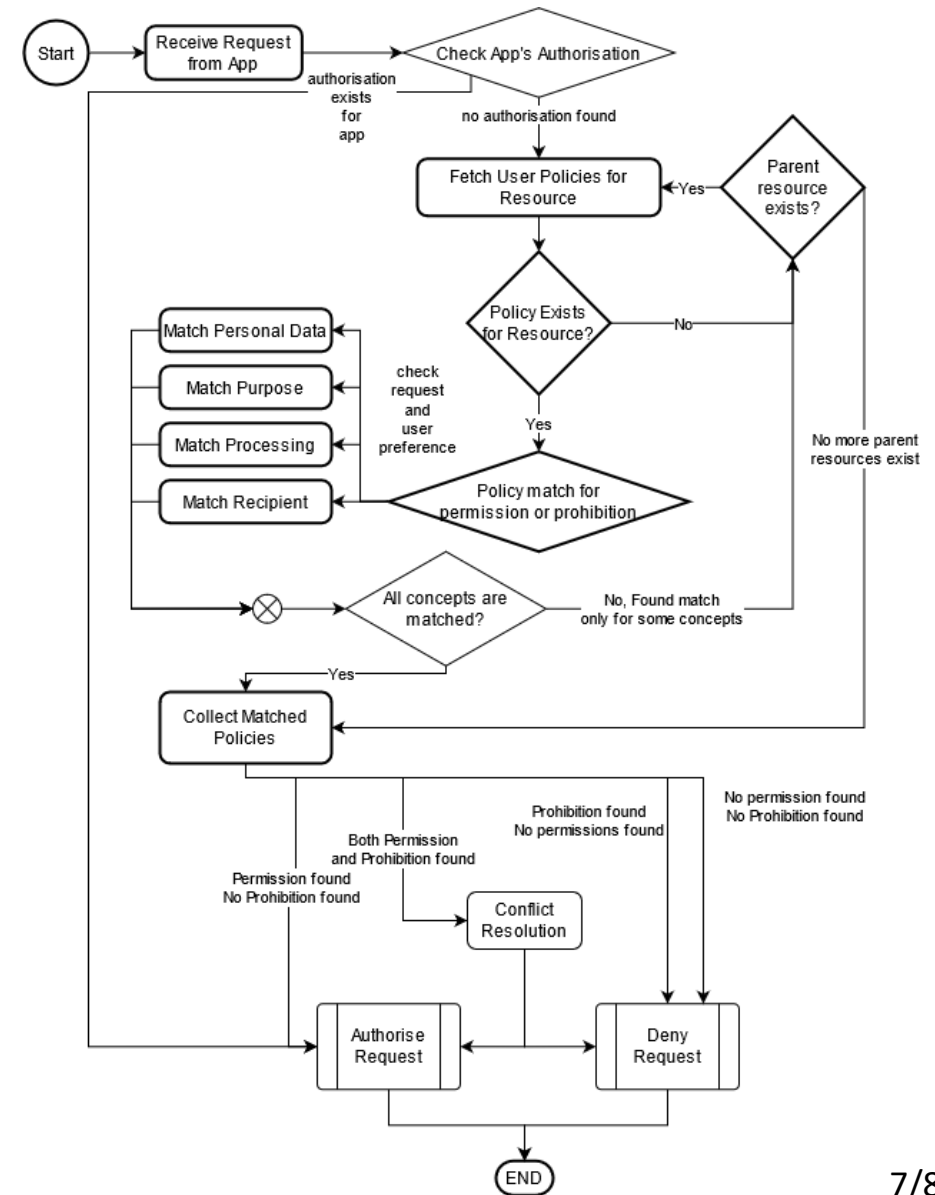


DEMO: <https://protect.oeg.fi.upm.es/solid-consent/>

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