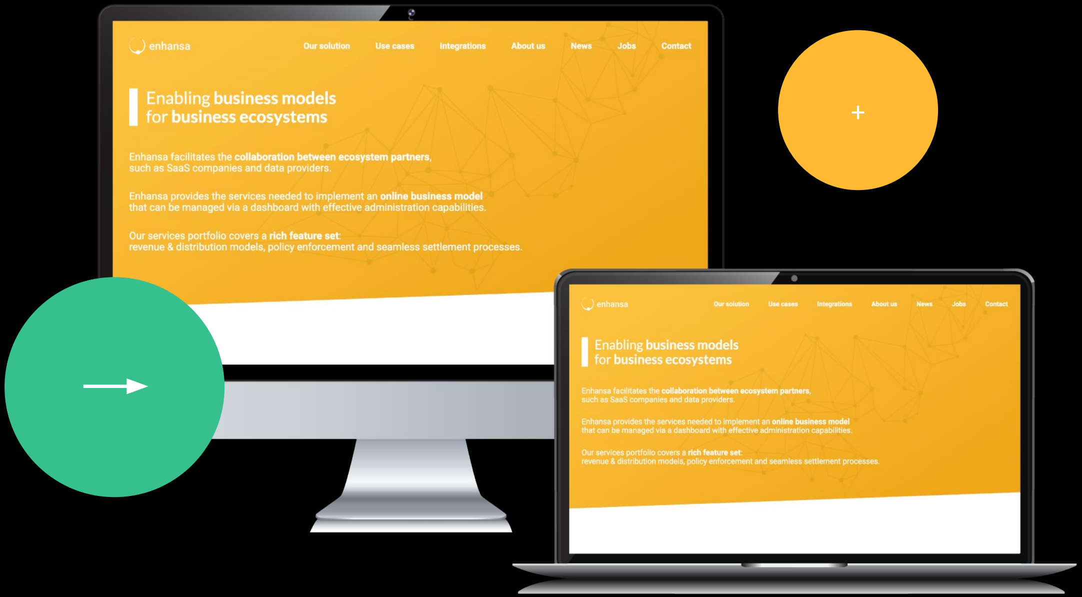
SHARCS End Event - SOLID Community Event

Policy Based Authorisation Decisions



Problem Statement

Business ecosystems (dataspaces & software platforms) require a configurable, distributed governance framework to define, enforce, and settle sustainable cooperation models, revenue models, and usage contracts, while accommodating diverse identity solutions and complex transactions.

Ecosystem Business Model

A Business Ecosystem

Distribution Model

Revenue Model

Value

represents
multiple partners
who create a combined
value proposition
for a specific use case

Value

Value Contribution

Ecosystem Product

Ecosystem Governance

Component
Usage Policies
Policy Information

Policy Enforcement
(IDM)

Audit Log

Clearing
House
Role

A Business Ecosystem

represents
multiple partners
who create a combined
value proposition
for a specific use case

Ecosystem
Product

Partner
Cooperation
Contracts

Usage Contracts

Subscriptions

Extensions

In-App Purchases

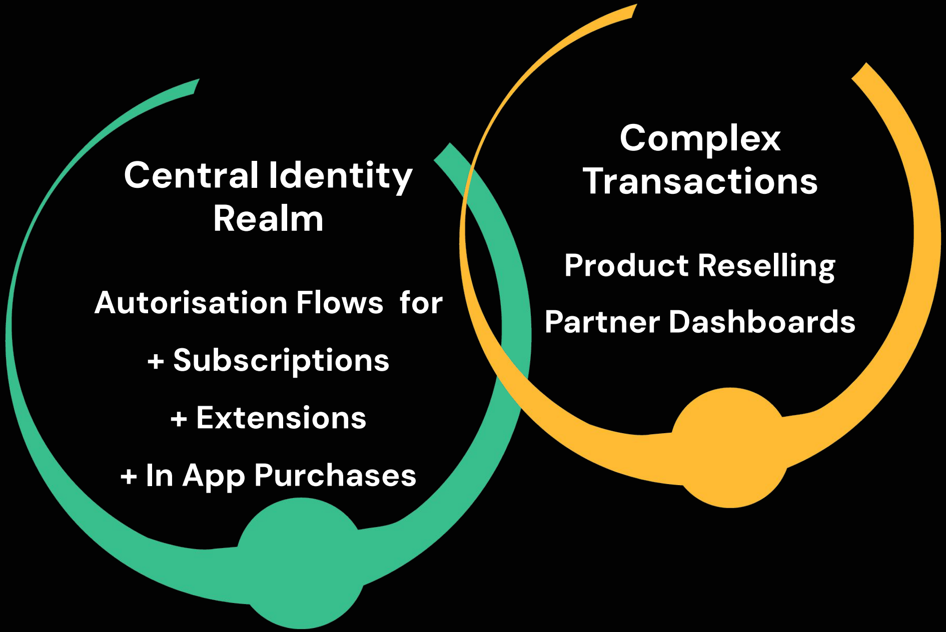
One-Off Purchases

Applicable for "green fields" and/or "central governed"

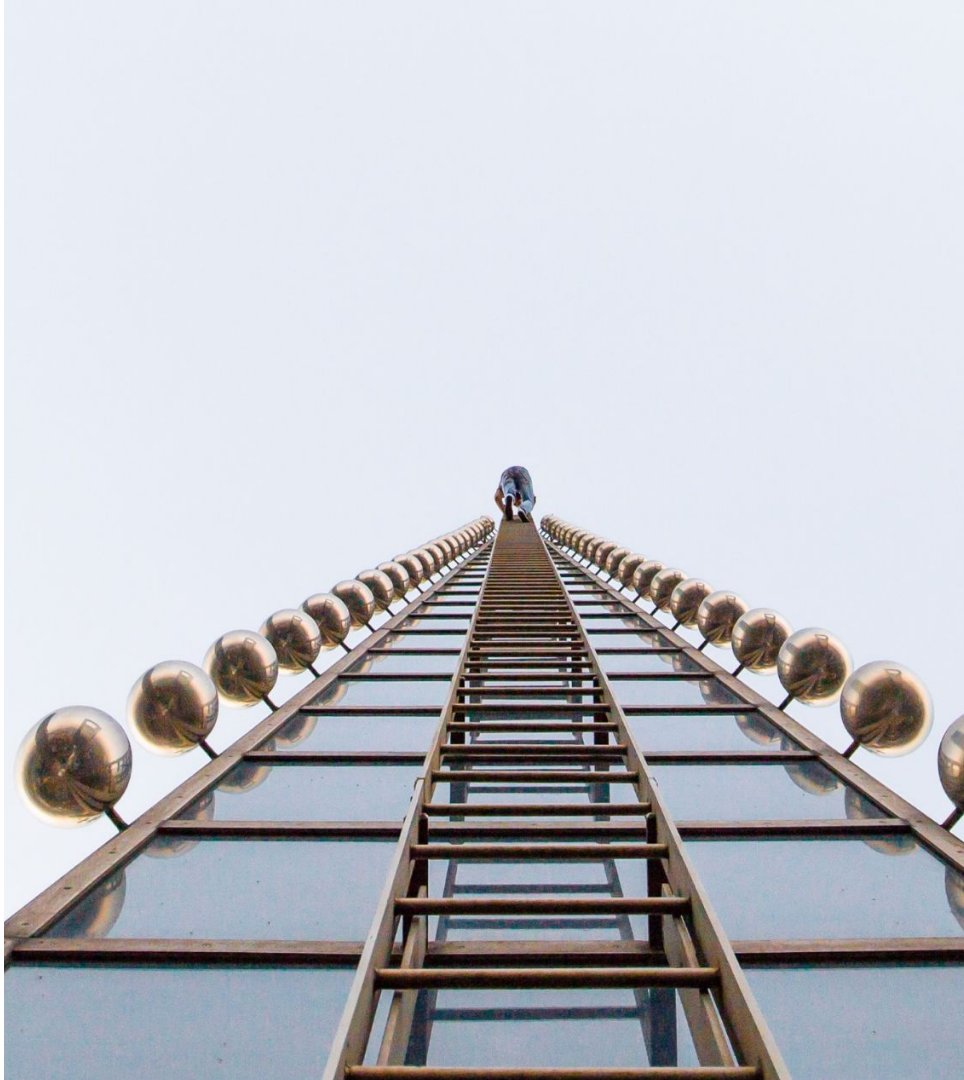
ecosystems

Enhansa

STATE OF THE ART



SHARCS

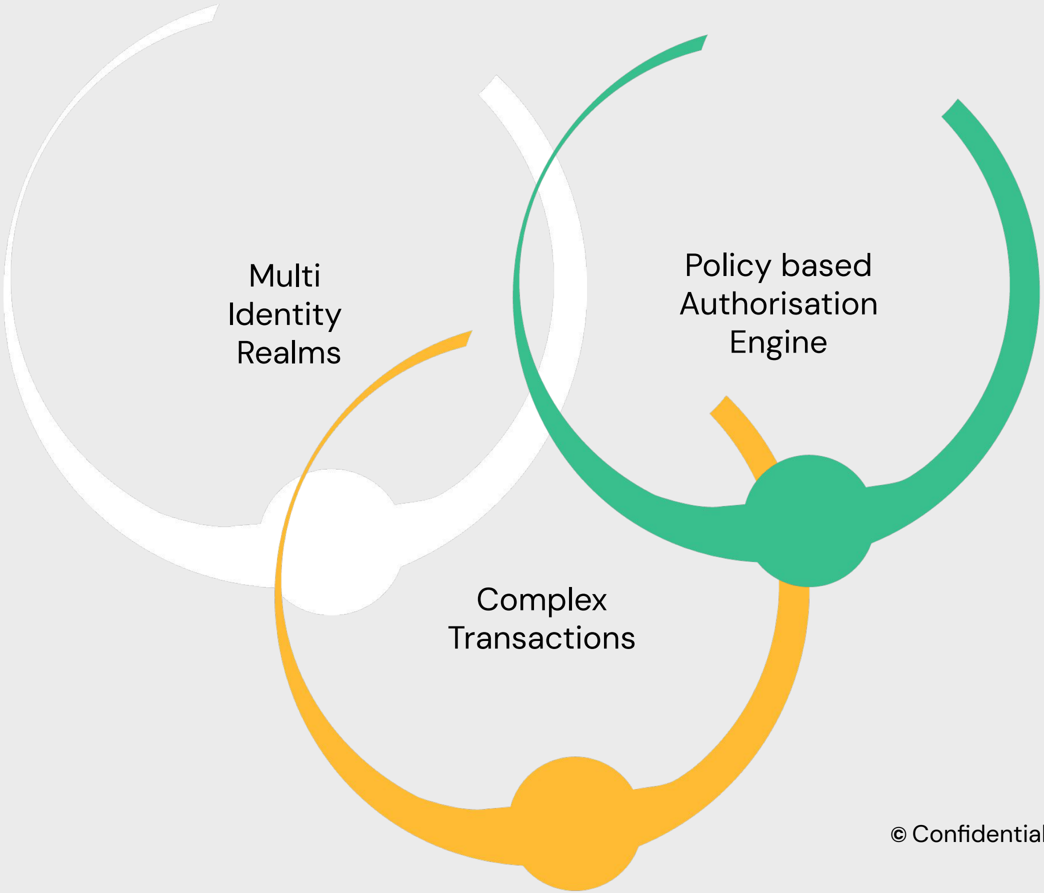


Problem Statement

Our ‘state if the art’ platforms do not fully leverage the commercial opportunity, due to technical limitations. We can not include third party applications in the ecosystem catalogue due to the lack of cross Identity interoperability.

The concept of Federated Identity solves **cross IDM authentication** to implement a multi-APP SSO environment.

However we did not have a solution for **authorisations in a multi-Identity context**, to enforce the business model and usage policies.



Enhansa

SHARCS R&D

Objectives

A. Validate the IDSA Clearing House architecture as a cross Identity authorisation approach.

B. Validate a Solid POD as a sovereign storage for digital rights on a company level.

Hurdles and bonuses

The other members in the consortium were not engaged to apply an IDSA compliant architecture (–)

By the time SHARCS started, IDSA published a list of 20 compliant IDSA connector implementations, so we didn't have to invest here (+)

Athumi's actual Pod offering does not offer a viable economic model for us. But they are actively repositioning their offering at this moment and might become a feasible option. (–/+)

Conducted research

We analysed the IDSA architecture and more specifically the Clearing House function.

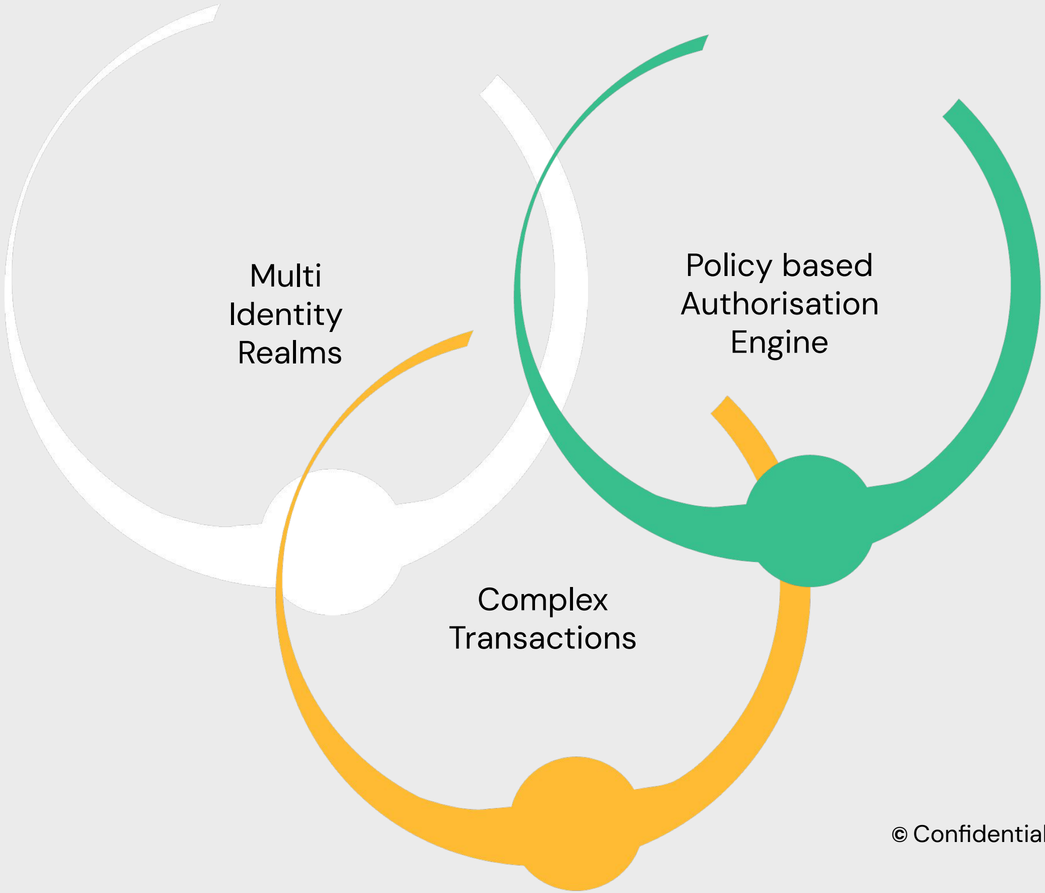
- We implemented a Policy Decision Point based on multiple policies and policy information points.
- We analysed the required architecture to prepare our product offering for cross IDP authorisations.

Solution Architecture

We chose an architecture based on XACML.

We chose Eye-Reasoner technology for the PDP to ensure the storage of decision proofs and to incorporate its semantic foundation.

- We converted policies in N3 to invoke Eye Reasoner.
- We adopted XACML to interact with Trustbuilder IDM.
- We provided a PDP endpoint for Trustbuilder..
- We implemented a PoC for sovereign storage for digital rights on a company level, but did not yet implement this on a SOLID pod.



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SHARCS Valorisation

Towards Seamless Policy Enforcement in Solid: Unifying Policies through N3 Translation Mechanism

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Abstract
Solid is a set of protocols based on existing web standards, designed to manage the orga applications, and identities on the Internet. While Solid currently uses basic access c there have been proposals for several policy languages to enable comprehensive access c policies to be expressed. However, using different policy languages in Solid poses challe interoperability and policy enforcement. We propose a translation mechanism that c expressed in various languages into the RDF Surfaces in Notation3 (N3S) format to ad this approach policies are first translated into first-order logic which can be executed evaluation environment. In this poster, we present a proof of concept that focuses o Open Digital Rights Language (ODRL) policy into N3S, and we employ the EYE reasoner recommendations.

Keywords
ODRL, Notation3, Semantic Policies,

1. Introduction

Solid[1] is an emerging web decentralization project initially proposed by Tim Be primary goal is to empower users by restoring their autonomy from dominant int and reestablishing control and data governance in their hands. The Solid Protocol v is built upon several key components: linked data platform, authentication, and utilizing either Web Access Control (WAC) or Access Control Policy (ACP).

Data pods based on Solid technology securely store personal data and enable between individuals and apps/third parties. However, the current access control m pods, based on WAC or ACP, are considered rudimentary and fail to address new

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[1]https://solidproject.org/
[2]https://solidproject.org/TR/protocol

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Drawing Conclusions from Linked Data on the Web
The EYE Reasoner

This issue's installment examines a software program reasoning about the world's largest knowledge source. Ruben Verborgh and Jos De Roo describe how a small open source project can have a large impact. This is the fourth open source product discussed in the Impact department and the first written in the logic programming language Prolog. —*Michiel van Genuchten and Les Hatton*

THE WEB is the world's largest source of knowledge for people—and machines. In the beginning, those machines were mostly search engine crawlers that extracted keywords from natural-language texts. But now, the Web offers them something far more powerful: linked data.

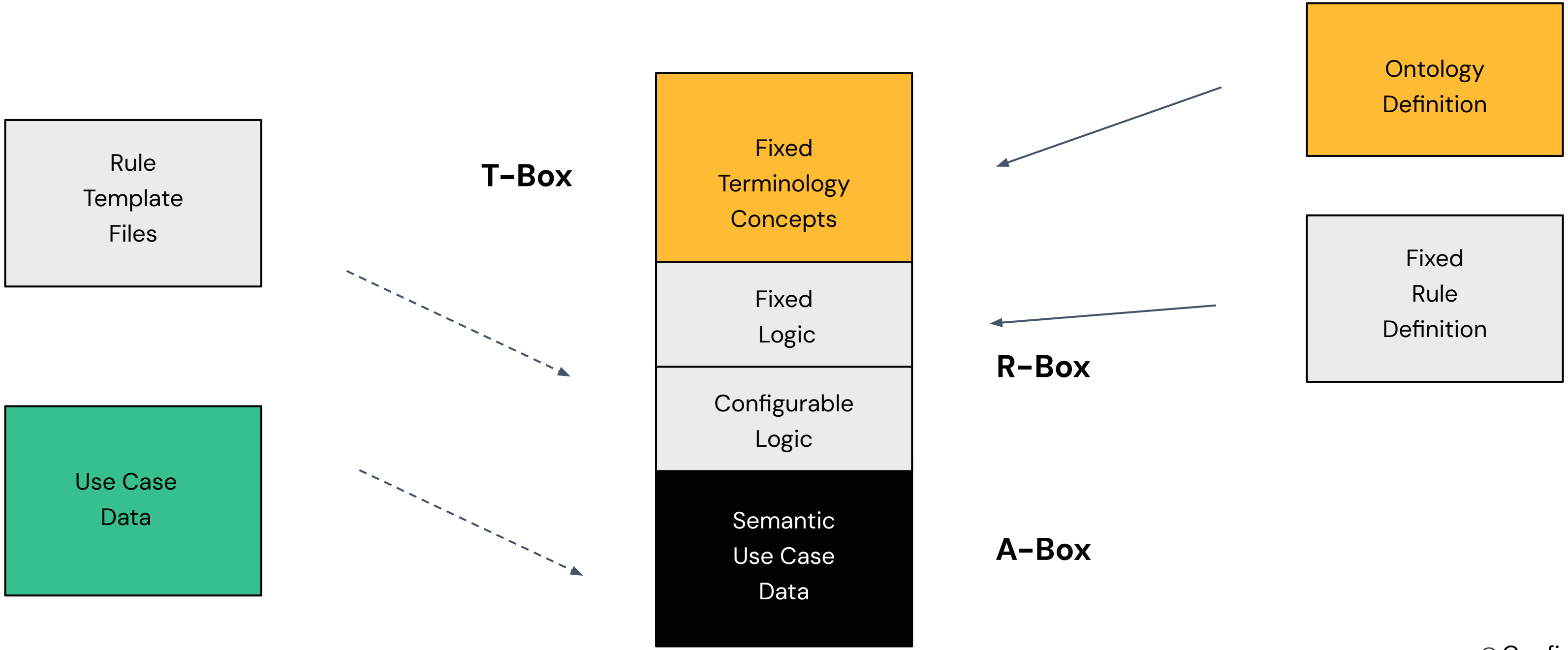
Linked data goes back to the essence of the Web and information itself, by representing each piece of data as a link between two things. For example, Figure 1 shows a triple stating that Thomas Edison "knows" Nikola Tesla. Unlike most hyperlinks between Edison and Tesla, this one carries a specific meaning. Yet linked data's real benefit goes deeper: Edison and Tesla are represented by their Web address or URL. So, if you want to know more about Edison or Tesla, you can follow their URLs. Therefore, linked data is linked on two levels: each triple links two concepts, and those concepts link to more information about themselves.

If you look closely at Figure 1, you'll notice that the link type itself (the property) is also a URL. So, if a machine doesn't understand what "knows" means, it can look it up by following that URL. This principle is crucial to linked data: if you don't know something, look it up. Which Thomas are we talking about? What does "knows" mean? Follow the URL to find out.

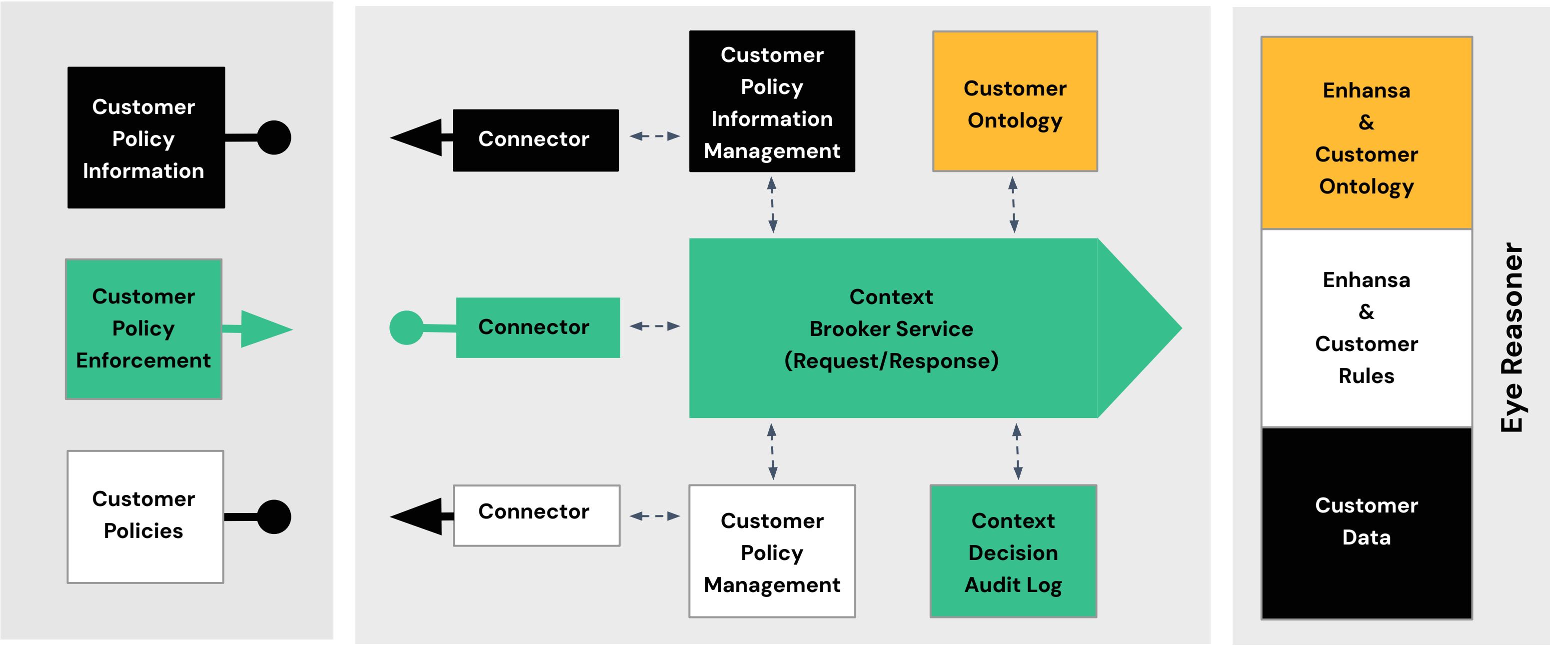
If you follow the URL for this particular "knows" (http://xmlns.com/foaf/0.1/knows), you'll learn about the nature of this relationship. First, using "knows" means the involved subject and object are people. So even if we don't know Thomas or Nikola, we know they're people (as opposed to pets or cartoon figures). Second, this "knows" indicates reciprocity, so Nikola also knows Thomas. As humans, we can derive this without even being aware of who Nikola or Thomas are.

Such pieces of derived knowledge seem human-specific, but linked data

Reasoner – Knowledge Base



Reasoner – Context Broker Services



Product Roadmap

- 2022

Flanders Sandbox Experiment

(Athumi)

2023

SHARCS Research and Analysis

2024

SHARCS PoC

SHARCS Use Cases:

- Business Model Enforcement
- Data Access Policies

Kolibrx Use Case: Coupons

2025

Launch Coupons

FinoMarker Pro Use Case

Enhansa Smart Wallet

2026 -

Leverage our head start

w.r.t.

Policy Based Decision

Opportunities

Questions?

Thank you