



EHDA

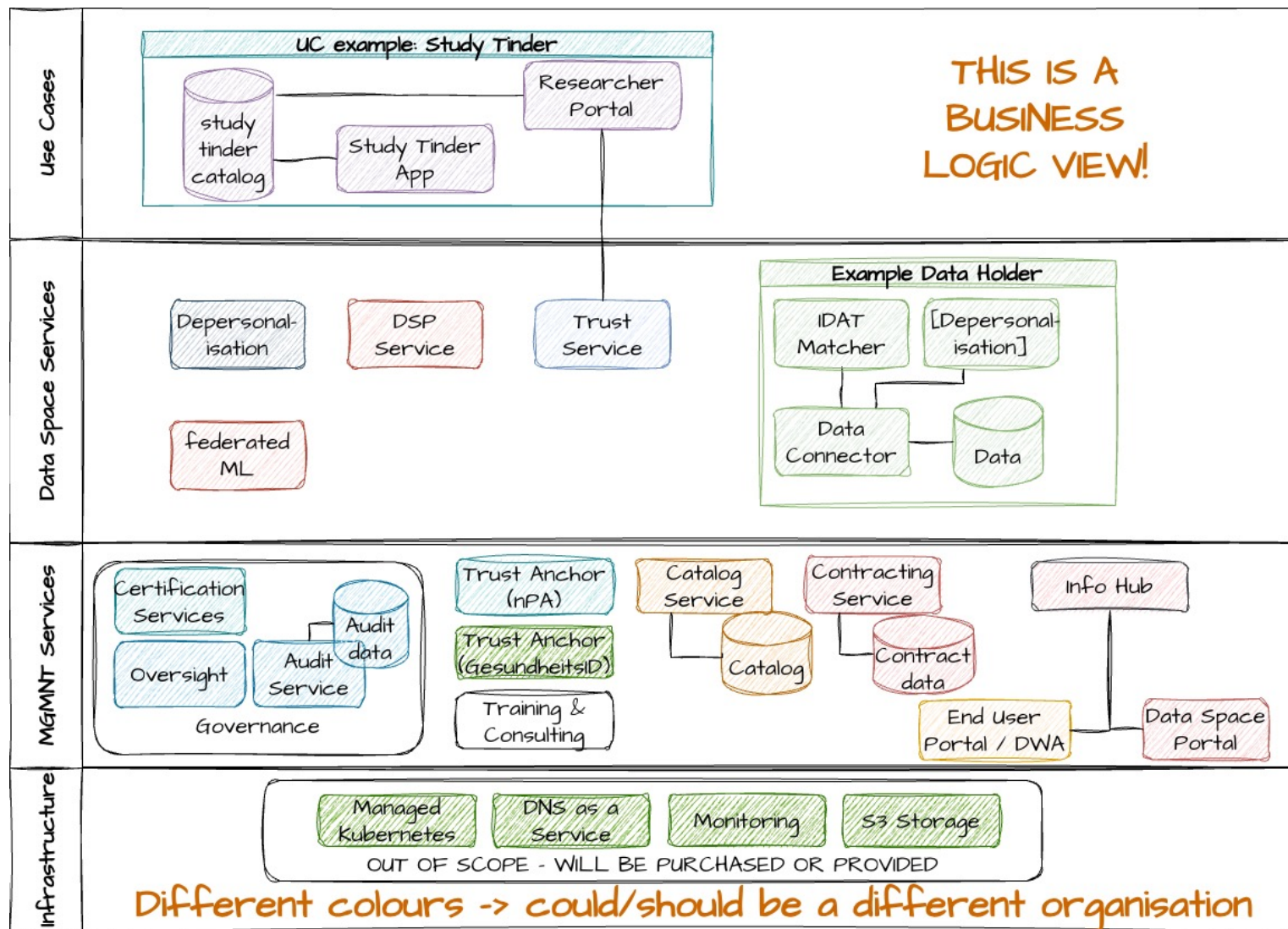
European Health Data Alliance e.V.

EHDA Dataspaces Technology Overview

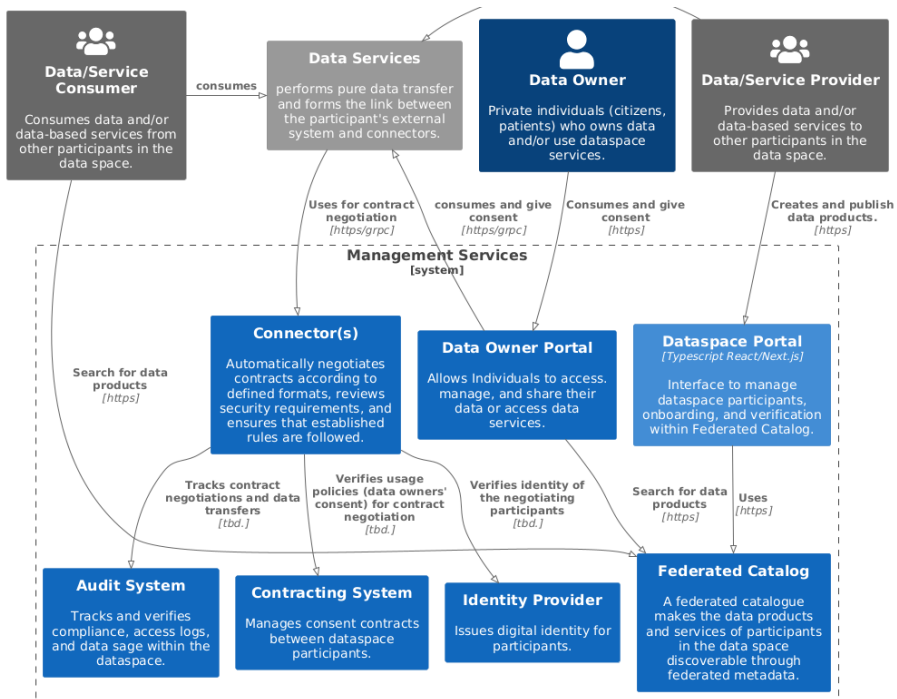
Introduction

- Built upon the results of www.health-x.org
- Demonstration implementation of a Gaia-X compliant federated citizen-centric dataspace
- Shows how the core components work together
- Development platform to further explore functionality around consent and data discovery
- Adjusted Gaia-X technology to make citizens full participants of the dataspace
- Deployable via Helm-Charts

Layers in the data space



Architecture Overview



Service

RUN-DSP

FC-Service

Signature-Auth-Handler

HST-DID

Reference Contract Service

rdsp-s3

Role

Core connector: implements the IDSA Dataspace Protocol as provider and consumer

Federated catalogue: stores participant self-descriptions and service offerings

Validates DPOP tokens and verifies
FC-Service membership

Hosts did:web documents derived from Let's Encrypt certificates

Manages contract state transitions
(reference implementation)

Reference provider backend:
exposes S3-stored files as datasets

RUN-DSP Connector

Management Service

The core connector of the dataLOFT platform. It is a lightweight Go binary that implements the IDSA Dataspace Protocol and runs with minimal resource requirements. The source code is published at codeberg.org/go-dataspace/run-dsp.

- **Provider role:** RUN-DSP listens for incoming DSP requests from consumers: catalogue queries, contract negotiation messages, and transfer requests
- **Consumer role:** RUN-DSP accepts commands from consumer applications via a gRPC control interface.

Auth subsystem

Management Service

The auth subsystem handles participant identity and trust verification in the dataLOFT platform.

This is a NestJS service that validates DPoP tokens (RFC 7800) on behalf of RUN-DSP.

When a DSP request arrives, RUN-DSP calls Signature-Auth-Handler via gRPC to verify the requester's identity.

Federated Catalog Service

Management Service

FC-Service is the federated catalogue of the dataLOFT platform. It is a modified version of the Eclipse FC Service adapted for the HealthX dataspace and implements the Gaia-X Federation Services Lot 5 specification (core catalogue features).

FC-Service makes provider self-descriptions and service offerings available to consumers and other platform components.

Providers register their offerings in the catalogue when they join the data space. Consumers query the catalogue to discover available datasets and providers before initiating a contract negotiation.

Consent Managing App

Management Service

The Consent Management App (CMA) is an application that gives data owners visibility and control over who accesses their data. It consists of a mobile frontend and a backend service that together form a single logical application.

The CMA allows a data owner to:

- View which providers hold their data.
- Review pending data access requests from consumers.
- Grant or revoke consent for specific studies or providers.

Reference Contract Service

Management Service

The Reference Contract Service manages contract state transitions on behalf of RUN-DSP. During a contract negotiation, RUN-DSP calls the contract service at each state transition to determine whether to proceed.

The contract service acts as a hook in the RUN-DSP processing pipeline. RUN-DSP delegates the decision to accept or reject a transition to the contract service. This decoupling allows the contract logic to be replaced without modifying RUN-DSP itself.

rdsp-s3

Management Service

rdsp-s3 is the official reference provider for the dataLOFT platform. It is written in Rust and implements the run-dsrpc gRPC provider interface, serving file data from an S3-compatible object store.

rdsp-s3 demonstrates how to build a provider backend that integrates with RUN-DSP. It handles the three core provider responsibilities:

- **Catalogue:** Returns metadata about available files so that consumers can discover them.
- **Dataset information:** Returns detailed information about a specific dataset on request.
- **Download instructions:** Returns a signed URL or equivalent instruction that allows the consumer to retrieve the file.

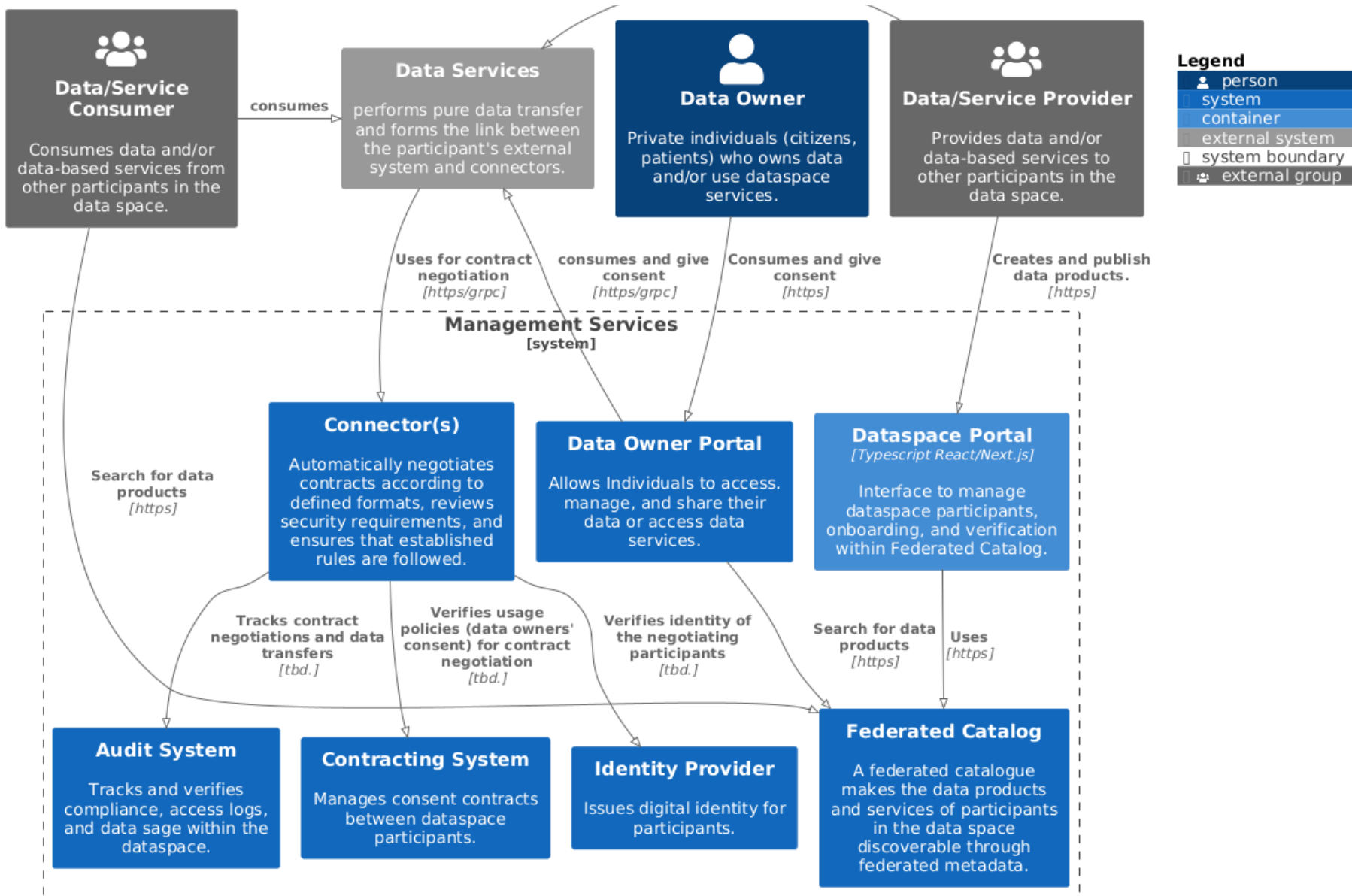
r-squared Demonstrator

Data Service

r-squared is the reference data service for the dataLOFT platform. It demonstrates how a domain-specific healthcare data service integrates with management services to enable data discovery, contract negotiation, and transfer.

r-squared implements an ECG (electrocardiogram) analysis workflow. It allows a consumer to discover available ECG datasets, negotiate access, retrieve the files, and trigger an analysis job.

The current r-squared demo runs without data owner consent. There is no CMA integration in this scenario — it demonstrates institution-to-institution data sharing directly between a provider and a consumer.



Let's have a look

<https://sandbox-demo.stage.dataspace.fun/>

This gives you

- Introduction
- Live demonstration dataspace
- Links to documentation

Questions?

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