

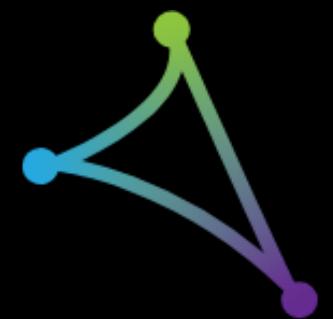


#5 Gaia-X Hackathon

26 + 27 September 2022

Eclipse Dataspace Components

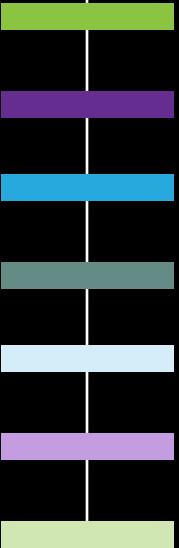
09 EDC - Minimum Viable Data Spaces in Room 05



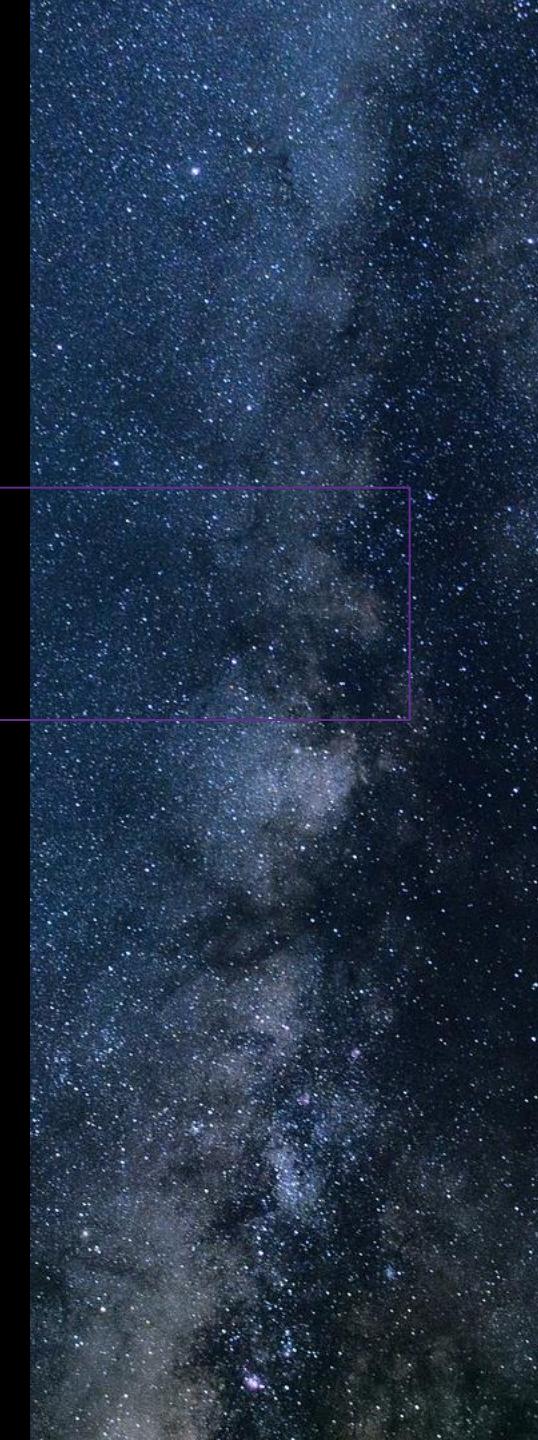
Hack Challenges #9 EDC MVD

Hack Room #5

1. Deploy the MVD to your [local DEV environment](#)
2. Deploy the MVD with [GitHub Action Build pipeline to Azure](#)
3. Build Pipelines to other deployment targets ([AWS](#), GCP, OKD, IONOS)
4. Verify the Self-Description against the GAIA-X compliance services [#86](#)



EDC Quick Overview



Eclipse Dataspace Components

- A reference implementation for IDSA RAM 4.0, **GAIA-X**
- Community driven Open Source project under **Eclipse foundation** on GitHub
- Free of intellectual property rights under **Apache 2.0** license
- Used by many **GAIA-X** projects
- Modular / Extendable Based on **Java** and RESTful interfaces



<https://projects.eclipse.org/projects/technology.dataspaceconnector>

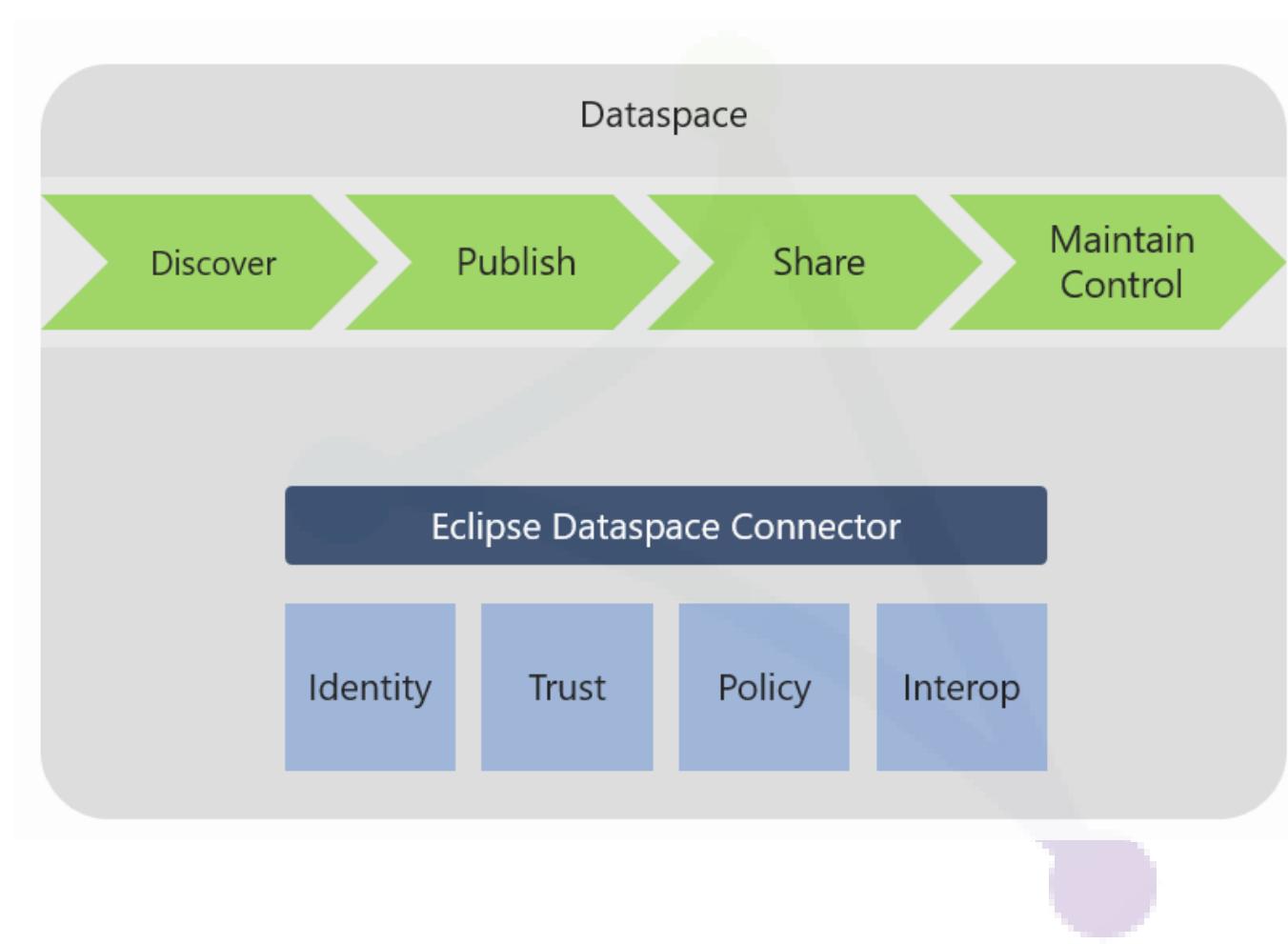
The characteristics of a gaia-x federated dataspace

Main Functionalities of a gaia-x Dataspace

- Catalogue (Discoverability)
- Sovereign Data Exchange
- Identity & Trust
- Compliance

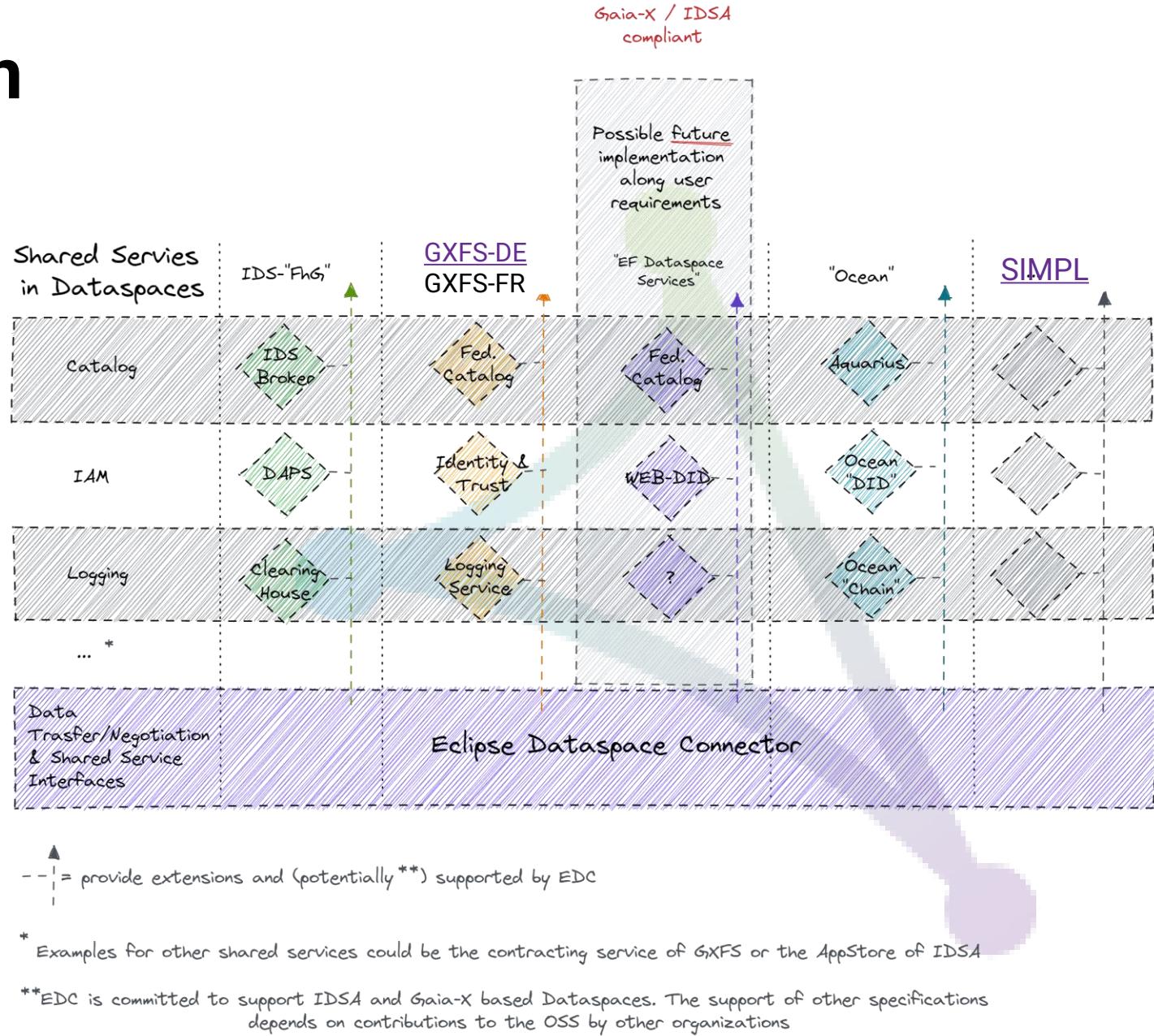
enable data cooperation in a multi-cloud federation by focusing on:

- **Identity**: Each participant remains in control of their identity.
- **Trust**: Each participant decides who to trust.
- **Sovereignty**: Each participant decides under what policies their data is shared.
- **Interoperability**: Each participant remains in control of their deployment.

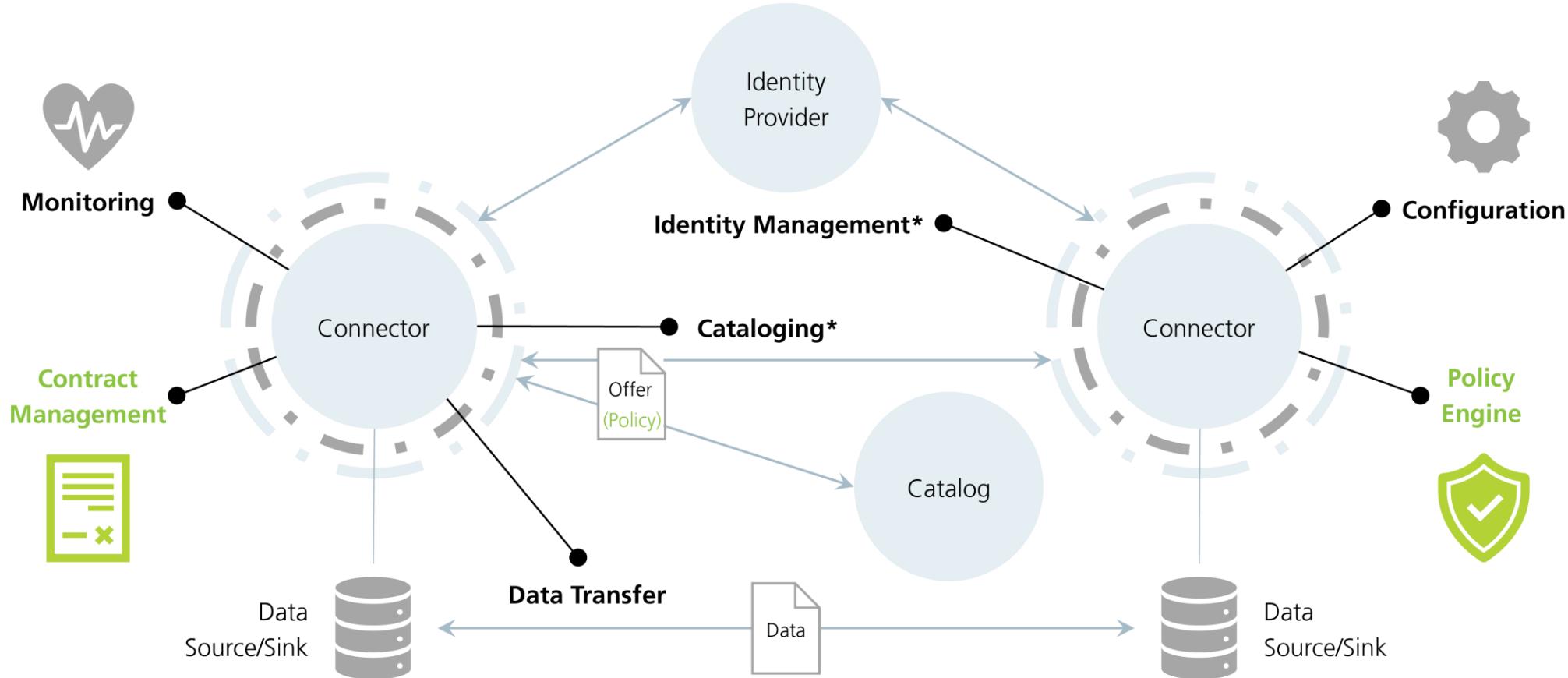


Ecosystem Integration

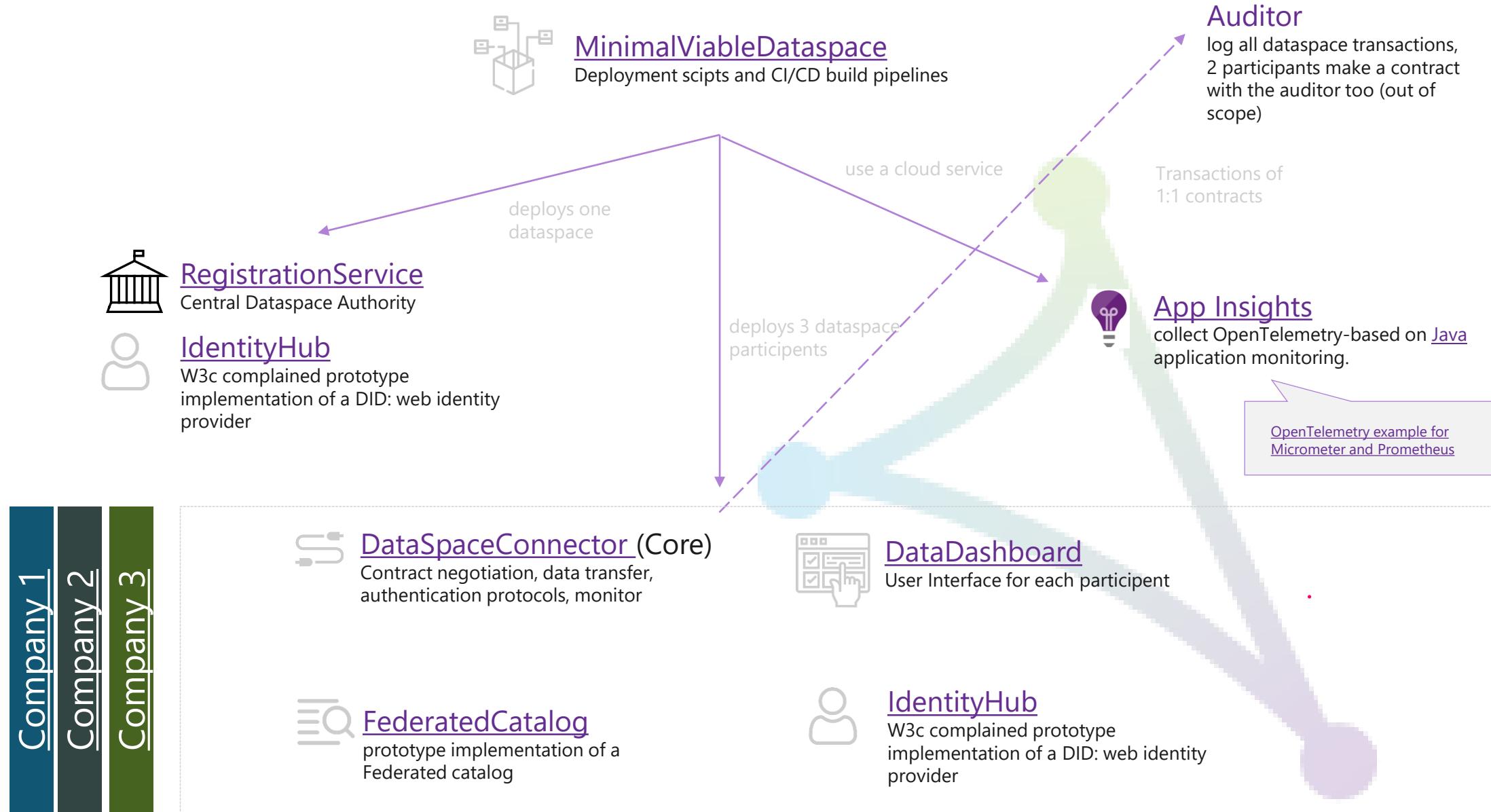
- EDC has a flexible, modular system
- Modules can be exchanged
- Custom modules can be created
- Existing modules can be extended
- Can be fully decentralized or partially centralized

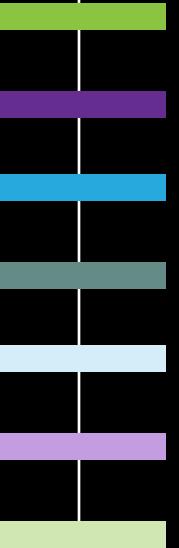


What are the core features of a dataspace connector?



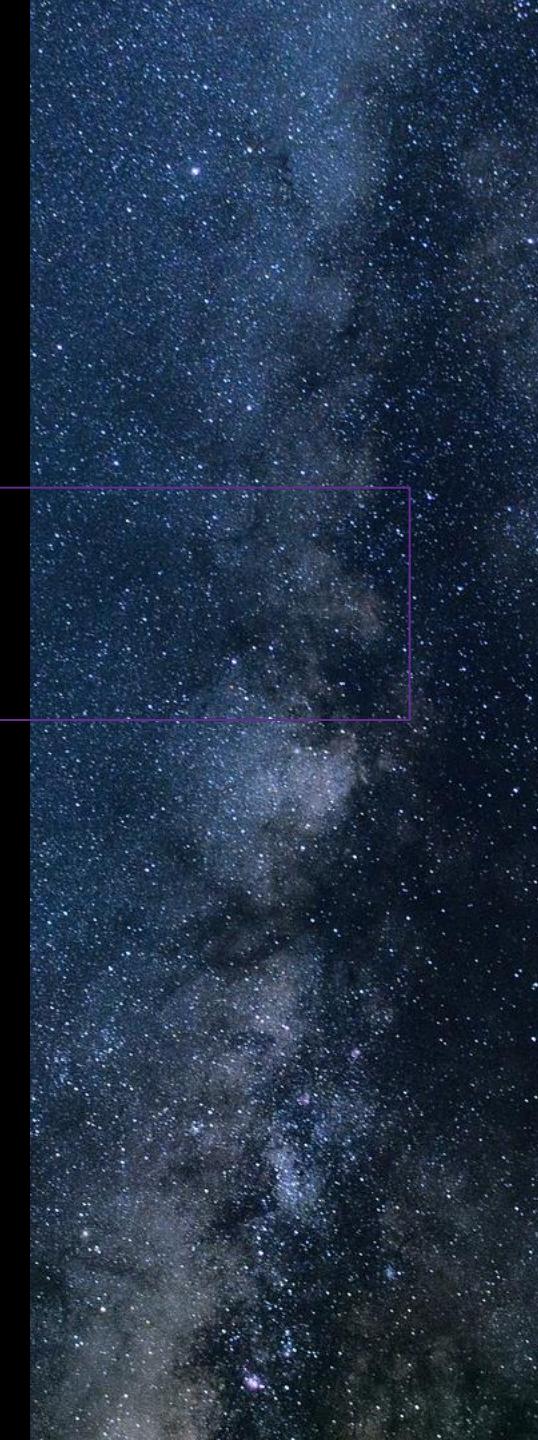
*either centralized or decentralized





Data Space Management a clickable big vision

<https://aka.ms/edc-vision>



- Flows X
- 0. Start Page
 - 1. Manage My Dataspaces
 - 2. Discover Data Shared by Others
 - 3. Negotiate a Data Contract
 - 4. Create a new Policy
 - 5. Create a new Data Asset
 - 6. Create Data Contract
 - 7. Review existing Data Contract and ...
- No description

Dataspaces Management Vision Demonstrator

DATA CONTRACTS

- Data Shared by Others
- Data Offered by Me

DATA MANAGEMENT

- Policy Store
- Asset Index
- Identity Hub

MY DATASPACES

- Manage My Dataspaces >
- Energy Dataspace
- Education and Skills Dataspace
- Finance and Insurance Dataspace
- Health Dataspace
- Industry 4.0 Dataspace
- Mobility Dataspace
- Space Dataspace

Home > Manage My Dataspaces

Here you can see all the dataspaces, where you are participating. This list is being populated based on Verifiable Credentials of membership which are saved in your Identity Hub. If you are missing a dataspace, where you are already a member, please check your Verifiable Credentials in the Identity Hub. If you want to join a new dataspace - you are welcomed to do that here!

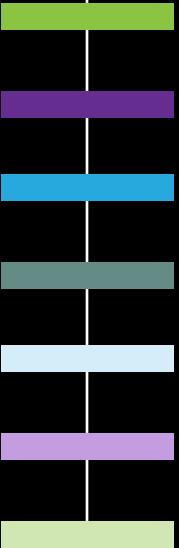
All Dataspaces (7) Joined (7) Pending (0) Saved (0) + Join Dataspace + Create Dataspace

Status: all Favorites: all Members: all Filter for any field Group by: No grouping Sort by: State

Showing 0 to 7 out of 7 records

| Participating | Participating | Participating | Participating |
|--|--|---|---|
| Energy Dataspace This trusted dataspace is supporting energy service providers and fostering collaboration between all stakeholders. It is a cornerstone of the decarbonization of the energy sector. 210 Data Shared by Others 0 Data Shared by Me | Education and Skills Dataspace The Education and Skills Dataspace (ESDS) will create a trusted space for the benefit of the educational community. 14 Data Shared by Others 2 Data Shared by Me | Finance and Insurance Dataspace The Finance and Insurance dataspace was founded by French and German banks, European cloud service providers. Other countries are equally welcomed to join. 17 Data Shared by Others 0 Data Shared by Me | Health Dataspace The Health Data Space is working to build a consortium of public bodies and private companies to promote the use of digital technologies and cloud solutions that will... 102 Data Shared by Others 1 Data Shared by Me |
| Industry 4.0 Dataspace More than 250 participants have joined the Industry 4.0 dataspace, which is steadily growing. 51 Data Shared by Others 0 Data Shared by Me | Mobility Dataspace The Mobility Dataspace will reduce congestion, CO2 emissions and pursue positive climate action goals, while creating new business opportunities for its members. 85 Data Shared by Others 0 Data Shared by Me | Space Dataspace A dataspace focusing on Space Data. Many lives depend on space data, it is crucial that this data can be handled securely and efficiently, ensuring European data sovereignty. 3 Data Shared by Others 5 Data Shared by Me | |

<https://aka.ms/edc-vision>



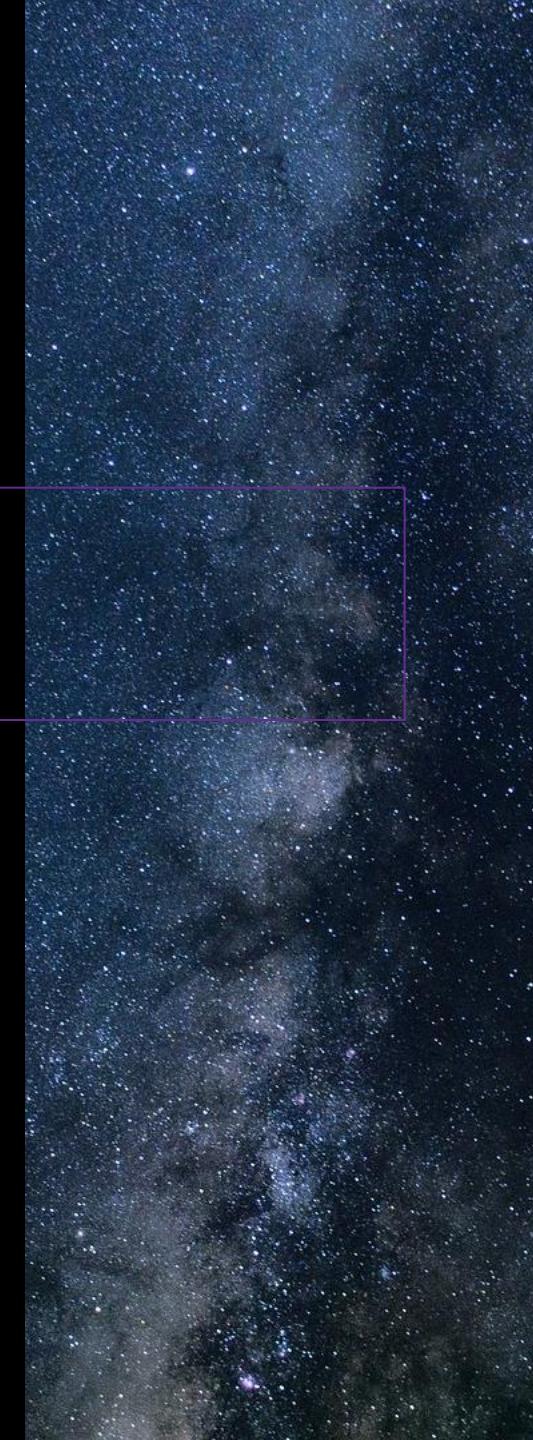
EDC Minimum Viable Dataspace Status Implementation

<https://github.com/eclipse-dataspaceconnector/MinimumViableDataspace/issues/86>



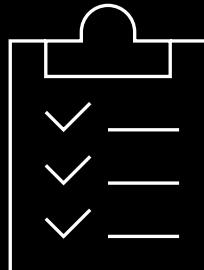


1. Dataspace Prequisite



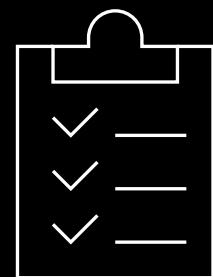
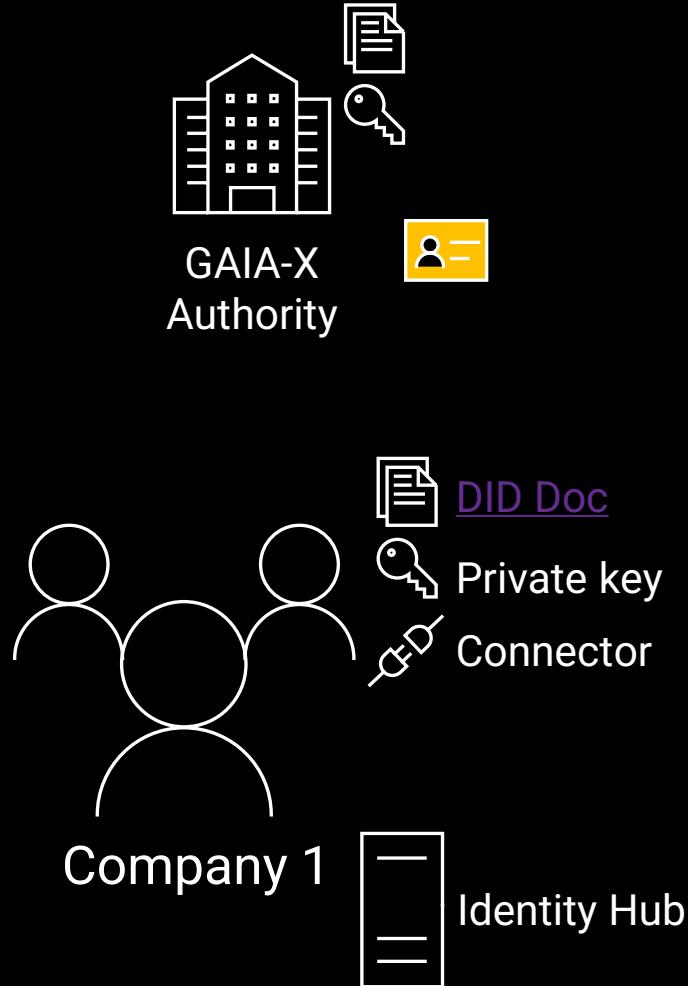


Minimum Viable Dataspace



MVD membership policy:
Must be a GAIA-X member to join

Minimum Viable Dataspace

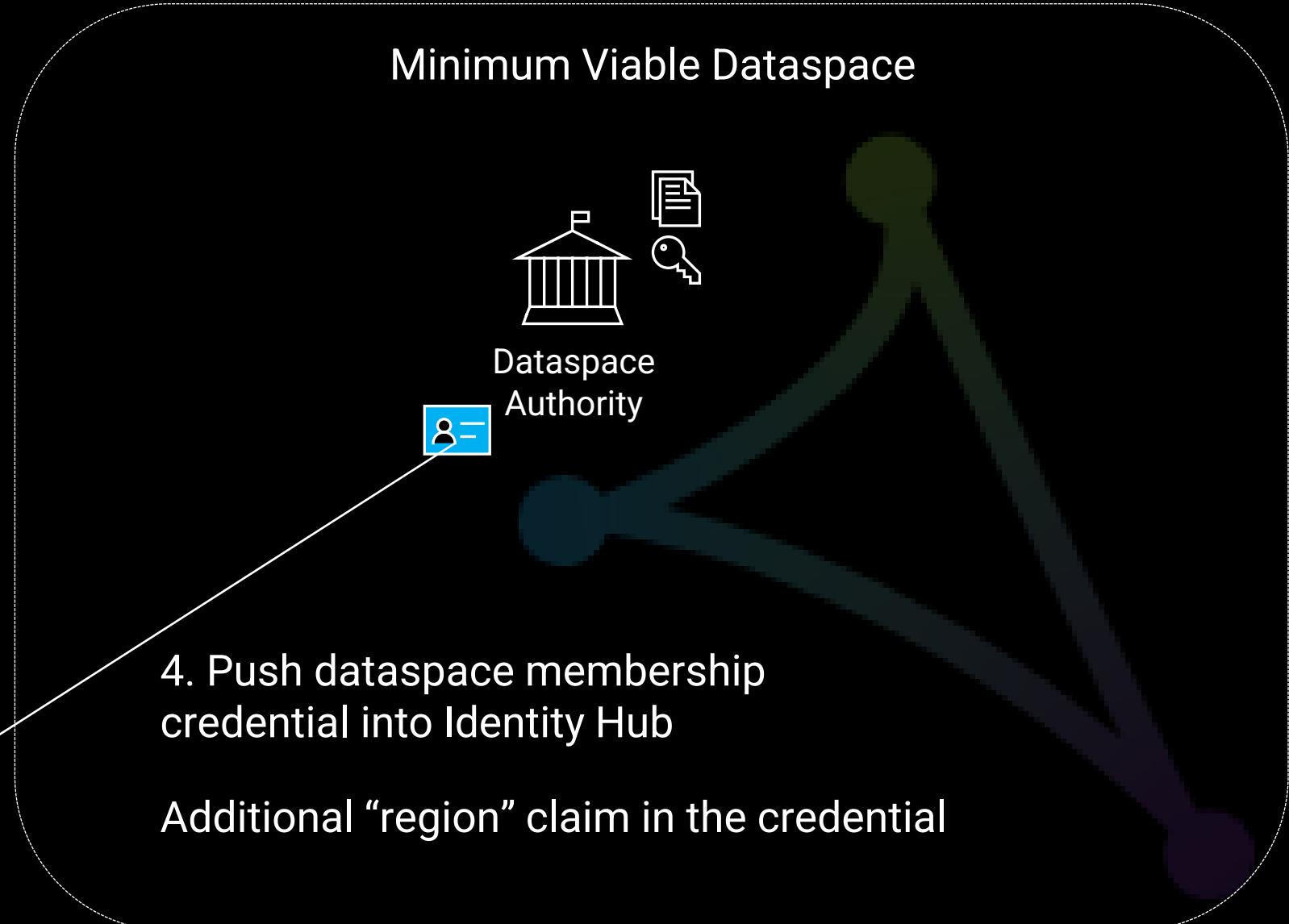
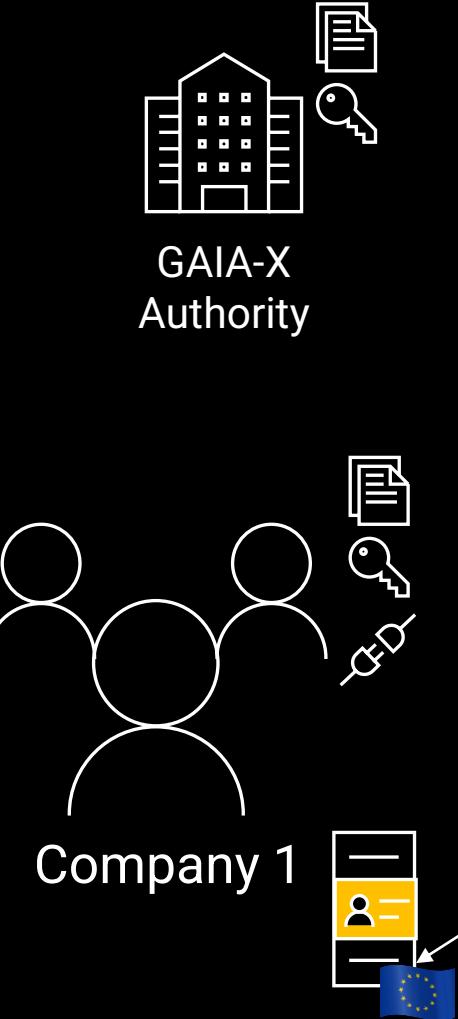


MVD membership policy:
Must be a GAIA-X member to join



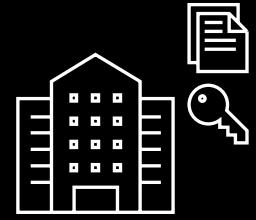
2. Dataspace onboarding a new participant



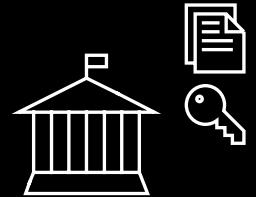


Minimum Viable Dataspace





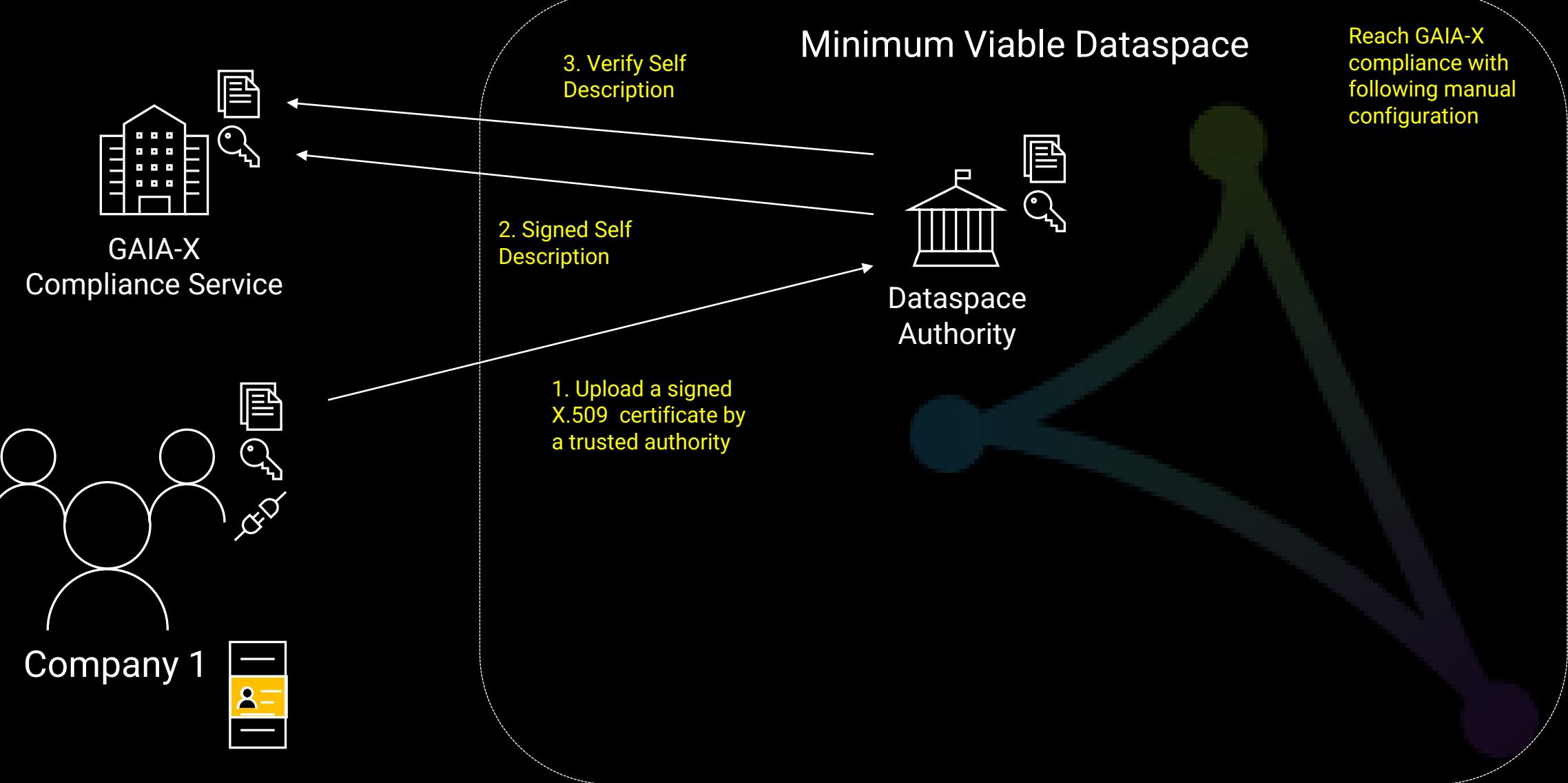
GAIA-X
Authority

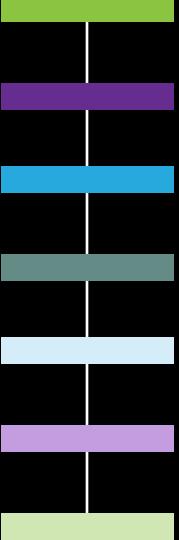


Dataspace
Authority

Minimum Viable Dataspace



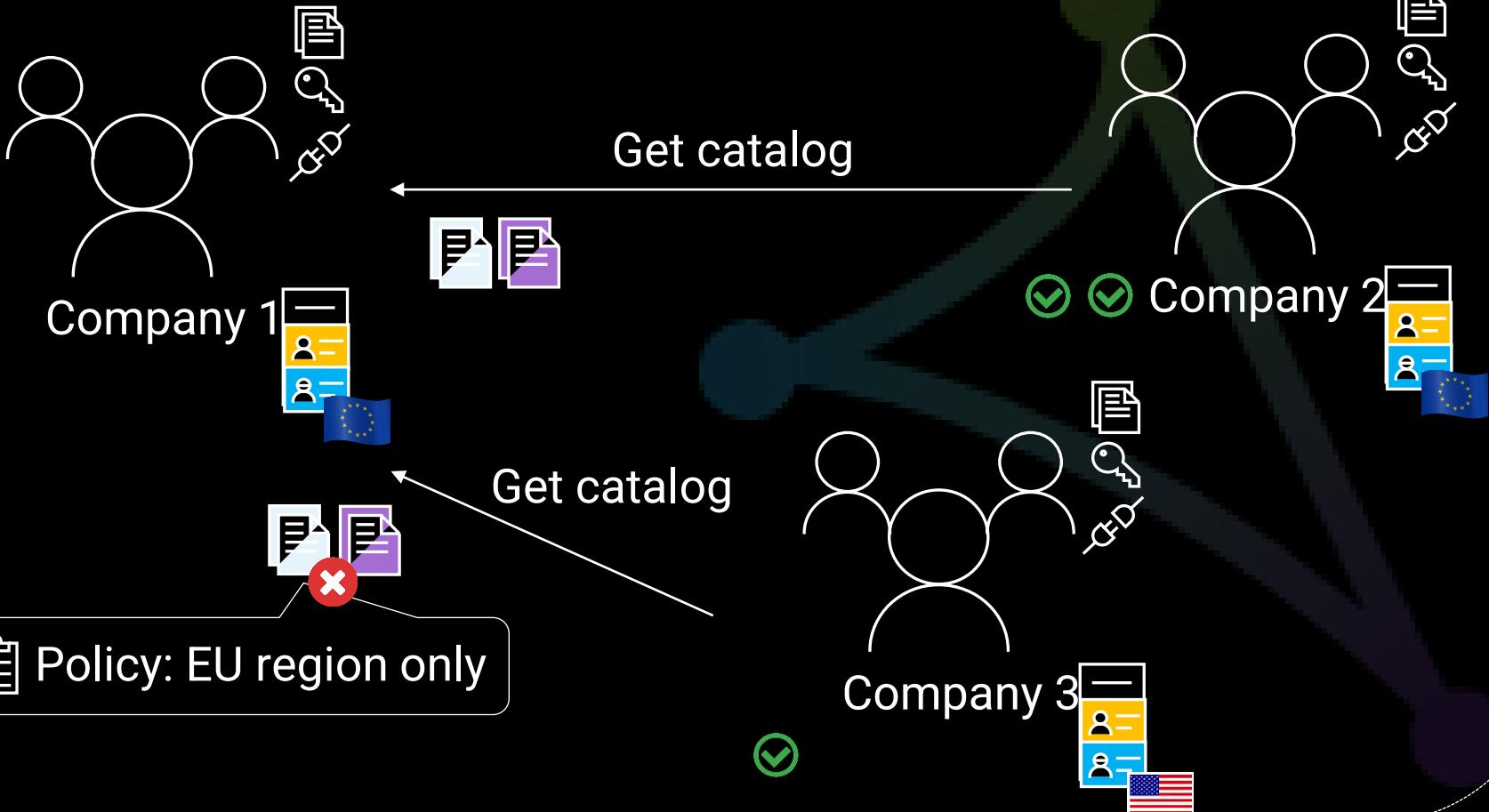


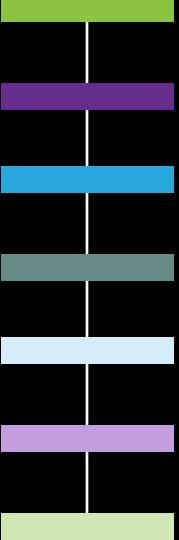


3. Catalog Federation

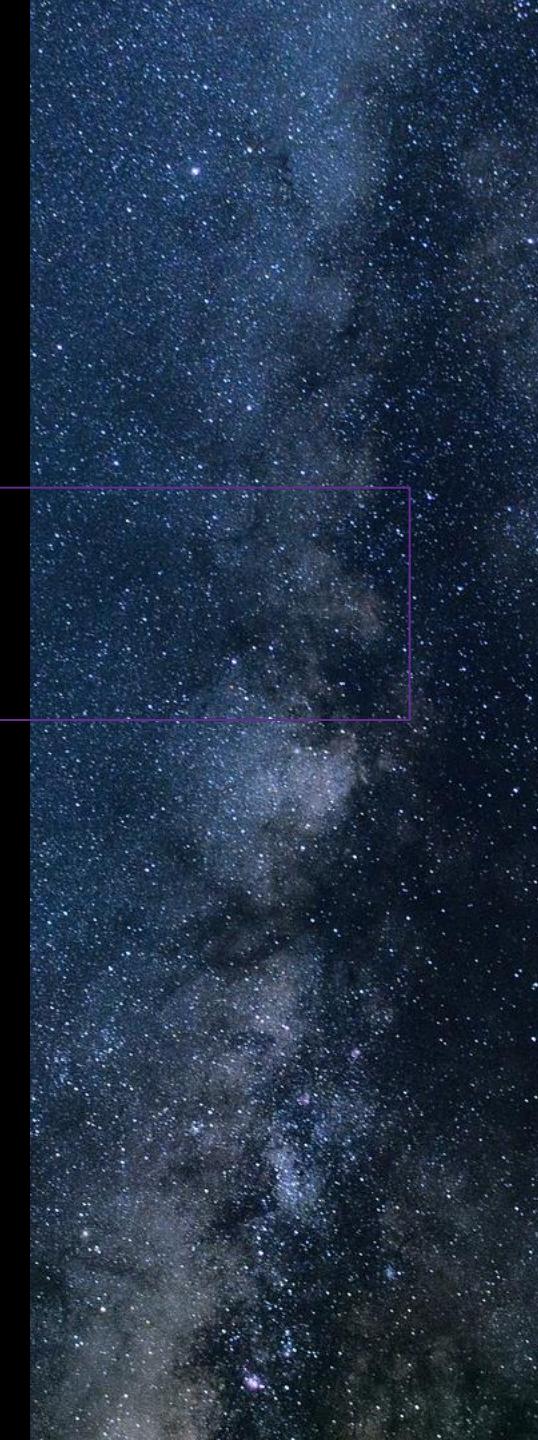


Minimum Viable Dataspace

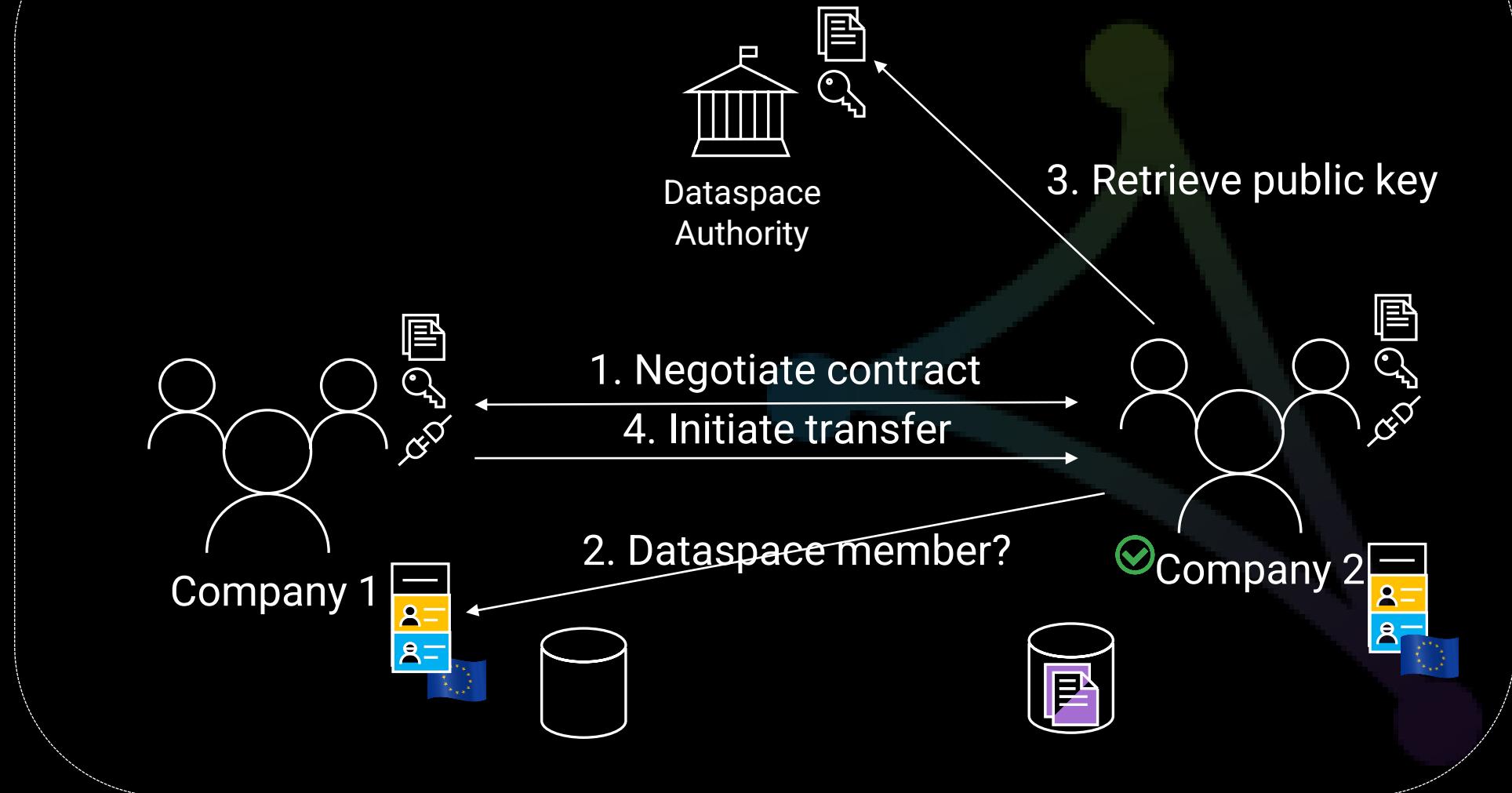




4. Data Transfer

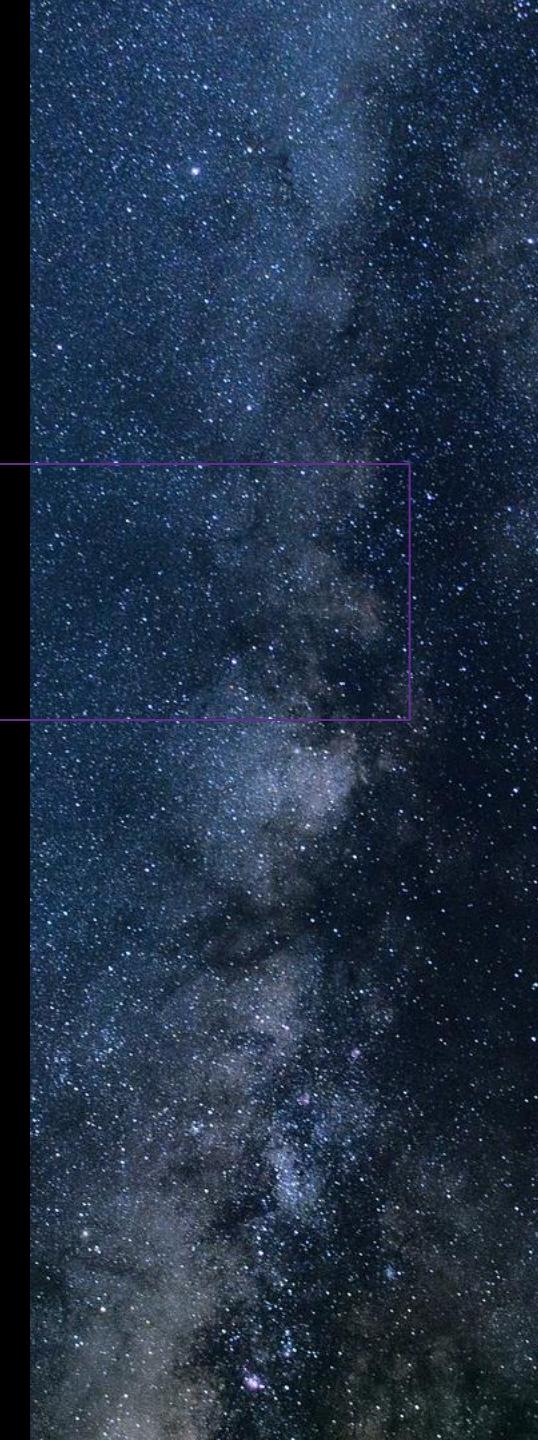


Minimum Viable Dataspace



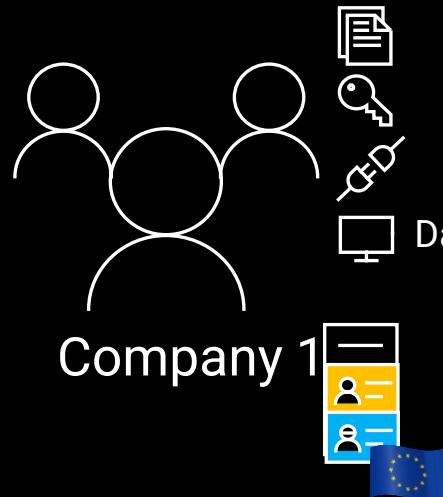


5. Overview and Contributions

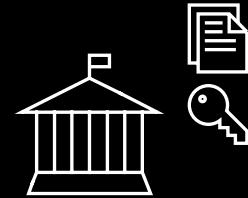




GAIA-X
Authority



Company 1



Dataspace
Authority

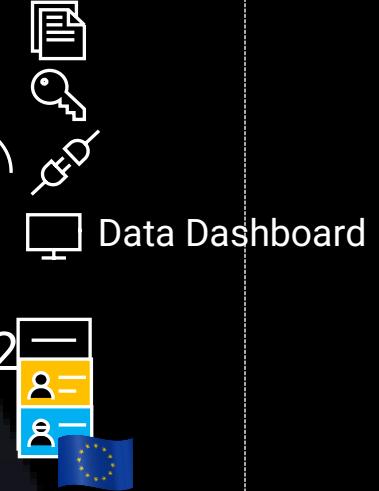
Minimum Viable Dataspace



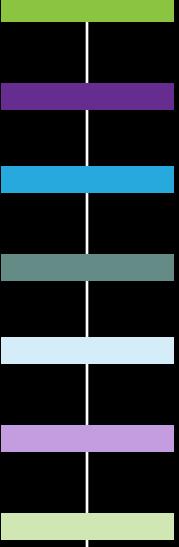
Company 3



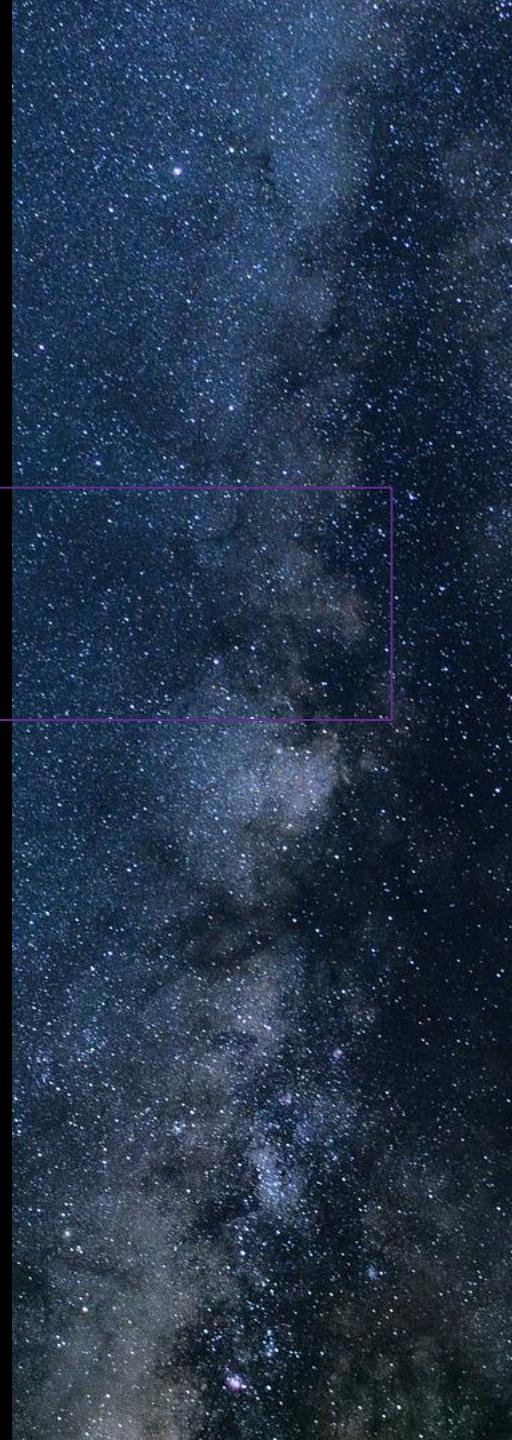
Company 2

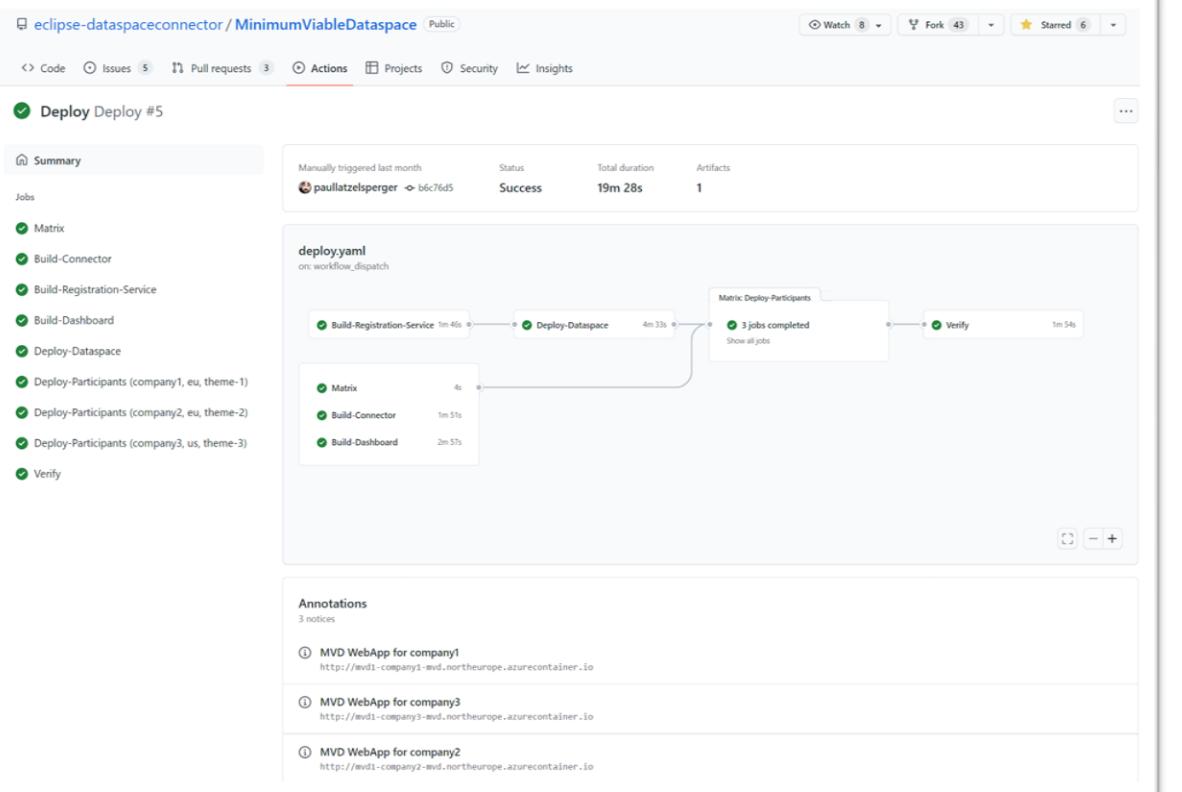
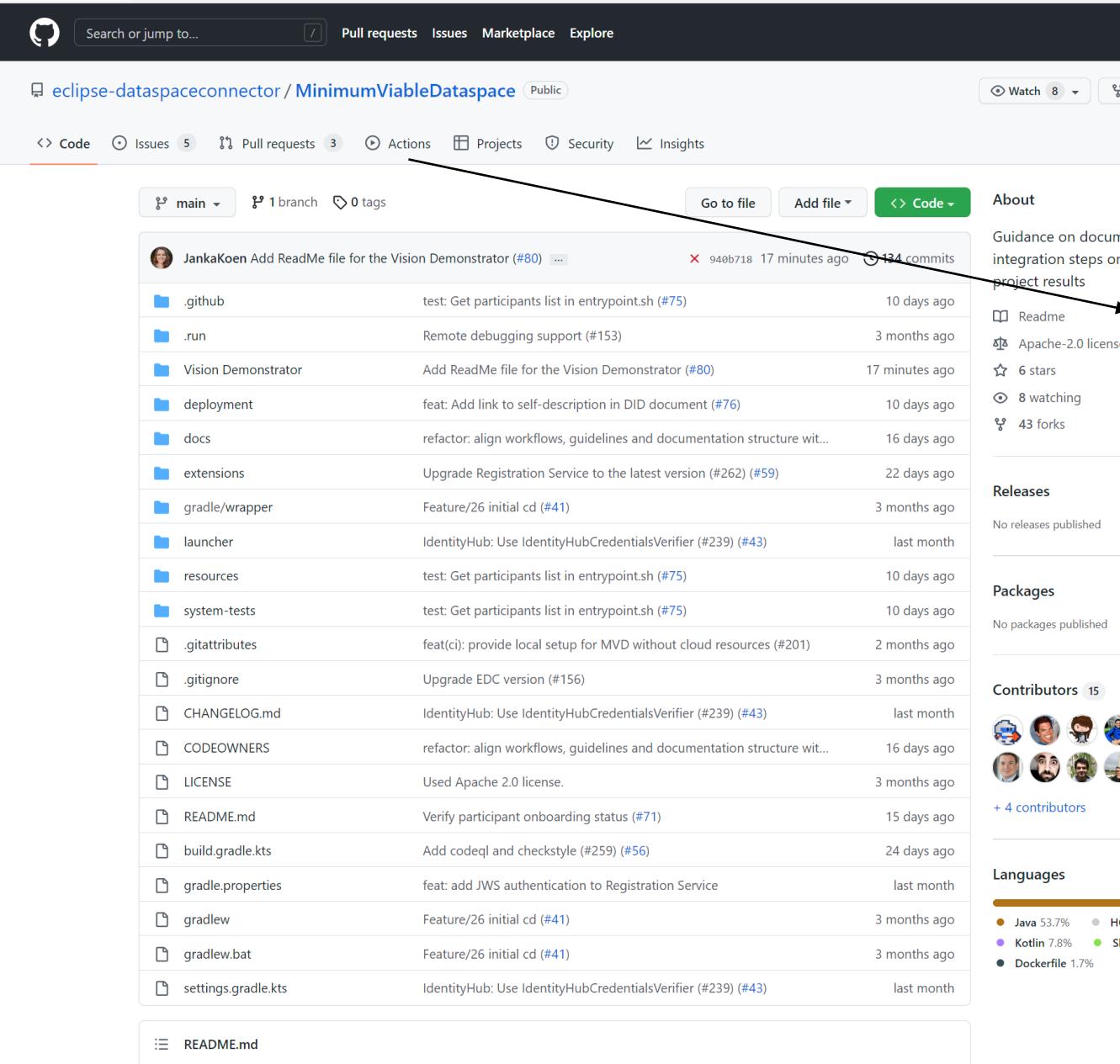


Company 2



Minimum Viable Dataspace in Action





<https://github.com/eclipse-dataspaceconnector/MinimumViableDataspace/actions/workflows/cd.yaml>

 Search or jump to... / Pull requests Issues Marketplace Explore

[ma3u / MinimumViableDataspace-eclipse](#) Public
 forked from [eclipse-dataspaceconnector/MinimumViableDataspace](#)
 Unpin
 Watch 0

[Code](#) [Pull requests](#) [Actions](#) [Projects](#) [Wiki](#) [Security](#) [Insights](#) [Settings](#)

Deploy Deploy #7

[Re-run all jobs](#) [...](#)

 Summary

Manually triggered 5 hours ago by  ma3u -> 9d2d3ab Status Success Total duration 21m 13s Artifacts 2

Jobs

-  Inputs
-  Build-Connector
-  Build-Registration-Service
-  Build-Dashboard
-  Deploy-Dataspace
-  Deploy-Participants (company1, eu, FR, the...
-  Deploy-Participants (company2, eu, DE, the...
-  Deploy-Participants (company3, us, US, the...
-  Verify

deploy.yaml
on: workflow_dispatch

```

graph LR
    Inputs[Inputs] -- 3s --> BRSS[Build-Registration-Service]
    BRSS -- 2m 3s --> DDS[Deploy-Dataspace]
    DDS -- 5m 47s --> Verify[Verify]
    BRSS --> BC[Build-Connector]
    BRSS --> BD[Build-Dashboard]
    BC -- 1m 46s --> BD
    BD -- 3m 17s --> DDS
    subgraph Matrix [Matrix: Deploy-Participants]
        3Jobs[3 jobs completed  
Show all jobs]
    end
    
```

[Annotations](#)
3 notices

- (i) MVD WebApp for company2
<http://ma3u1-company2-mvd.northeurope.azurecontainer.io>
- (i) MVD WebApp for company1
<http://ma3u1-company1-mvd.northeurope.azurecontainer.io>
- (i) MVD WebApp for company3
<http://ma3u1-company3-mvd.northeurope.azurecontainer.io>

The image displays three sequential screenshots of the EDC Demo application interface, illustrating its navigation and content structure.

Screenshot 1: Getting Started

The top navigation bar is teal, containing the text "EDC Demo" and "Getting Started". The main content area shows a sidebar with icons and labels: "Getting Started" (info icon), "Catalog Browser" (grid icon), "Contracts" (link icon), "Transfer History" (list icon), "Contract Definitions" (cross icon), "Policies" (magnifying glass icon), and "Assets" (up arrow icon). The "Getting Started" link in the sidebar is highlighted with a blue border.

Screenshot 2: Catalog Browser

The top navigation bar is teal, containing the text "EDC Demo" and "Getting Started". The main content area shows the same sidebar as the first screenshot. The "Catalog Browser" link in the sidebar is highlighted with a blue border.

Screenshot 3: Contracts

The top navigation bar is teal, containing the text "EDC Demo" and "Getting Started". The main content area shows the same sidebar as the previous screenshots. The "Contracts" link in the sidebar is highlighted with a blue border.

Content Area (Top Level)

The content area has a green header bar with the text "Getting Started". Below it is a dark grey section containing:

- Eclipse Dataspace Connector**

The Eclipse Dataspace Connector provides a framework for sovereign, inter-organizational data exchange. It implements the International Data Spaces standard (IDS) as well as relevant protocols associated with GAIA-X. The connector is designed in an extensible way in order to support alternative protocols and integrate in various ecosystems.

[GitHub](#) [Getting Started](#) [Onboarding Guide](#)
- EDC Data Dashboard (this application)**

This EDC Data Dashboard is a developer UI for the EDC Data Management API. This application is not intended for production usage and can be used to showcase EDC from a technical perspective, as the UI is designed as a 1-1 mapping of the Data Management API.

[Data Management API](#)

Example use cases, that you can try out with this application, are:

 - ✓ View the asset catalog available to you in your Dataspace using the [Catalog Browser](#)
 - ✓ Negotiate a contract for data sharing in your Dataspace using the [Catalog Browser](#)
 - ✓ View your existing contracts in the [Contracts](#) page
 - ✓ Transfer an asset in your Dataspace using the [Contracts](#) page
 - ✓ View which assets have been transferred in your Dataspace in the [Transfer History](#) page
 - ✓ View and create assets using the [Assets](#) page
 - ✓ View and create policies and apply these to assets in your Dataspace using the [Policies](#) page
 - ✓ Publish a new asset into your Dataspace using the [Contract Definitions](#) page

Let's kick off your project

1. Getting started

2. Join the EDC Community

3. Deploy the MVD

4. Contribute to EDC

Eclipse Dataspace Components

Please note: All content of provided documentation reflects the current state of discussion.

Introduction

Announcements Welcome! mspieckermann

Planning Open Q&A Session julianamopus

General EDC vs DSC dilindbunkerba

Planning Milestone Planning julianamopus

[Contact Us](#) [EF Project](#) [Homepage](#) [YouTube](#)

[https://github.com/eclipse-dataspaceconnector/MinimumViableDataspace](#)

Forked from [eclipse-dataspaceconnector/MinimumViableDataspace](#)

Actions Projects Wiki Security Insights Settings

Deploy Deploy #7

Summary

Jobs

- Inputs
- Build-Connector
- Build-Registration-Service
- Build-Dashboard
- Deploy-Dataspace
- Deploy-Participants (company1, eu, FR, the...)
- Deploy-Participants (company2, eu, DE, the...)
- Deploy-Participants (company3, us, US, the...)
- Verify

deploy.yaml on workflow_dispatch

```
graph LR; Inputs[Inputs] --> BuildConnector[Build-Connector]; Inputs --> BuildDashboard[Build-Dashboard]; BuildConnector --> BuildRegistrationService[Build-Registration-Service]; BuildRegistrationService --> DeployDataspace[Deploy-Dataspace]; DeployDataspace --> Verify[Verify]; DeployDataspace --> MetricDeployParticipants[Metric Deploy Participants]; MetricDeployParticipants --> Verify;
```

Metric Deploy Participants

3 jobs completed

Re-run all jobs

Annotations

- MVD WebApp for company2 <http://mvd1-company1-edn.northeurope.azurecontainer.io>
- MVD WebApp for company1 <http://mvd1-company1-edn.northeurope.azurecontainer.io>
- MVD WebApp for company3 <http://mvd1-company3-edn.northeurope.azurecontainer.io>

Artifacts

Produced during runtime

| Name | Size |
|-----------------------------|-----------|
| Gatling reports (cloud run) | 742 KB |
| gaxkey | 227 bytes |

Annotations

- 2 Open
- 6 Closed

Milestone 6

100% complete 0 open 44 closed

Milestone 5

100% complete 0 open 46 closed

Milestone 4

100% complete 0 open 41 closed

Milestone 3

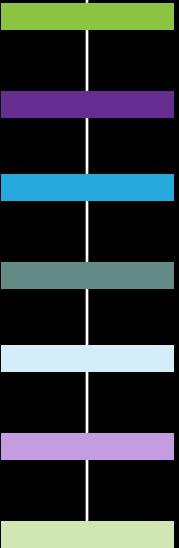
100% complete 0 open 44 closed

Milestone 2

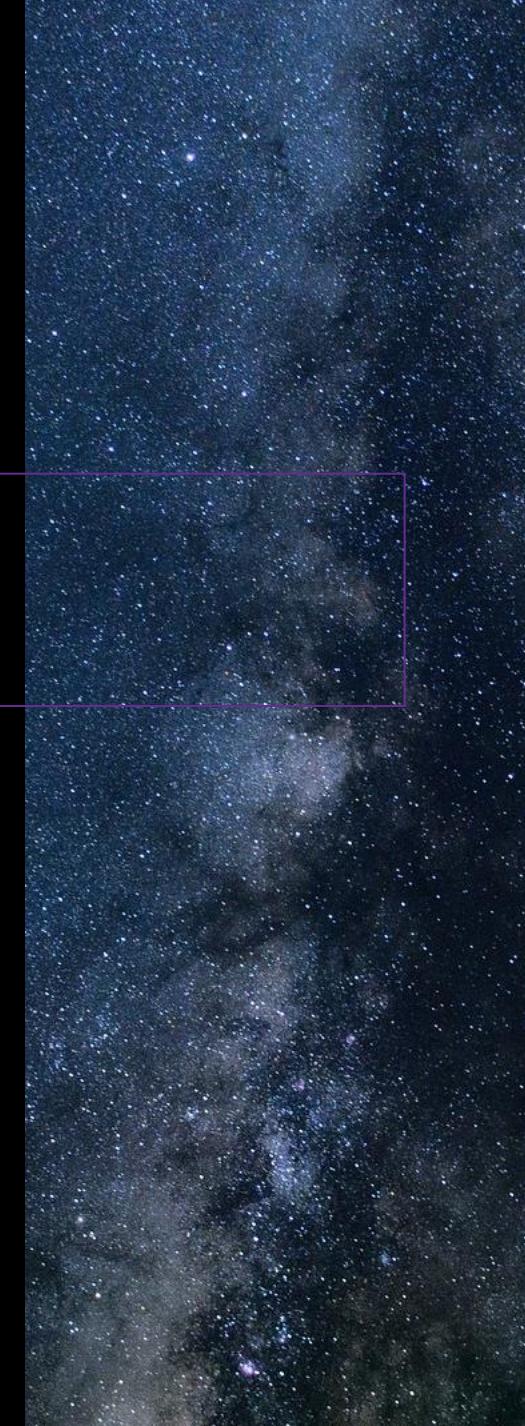
100% complete 0 open 50 closed

Milestone 1

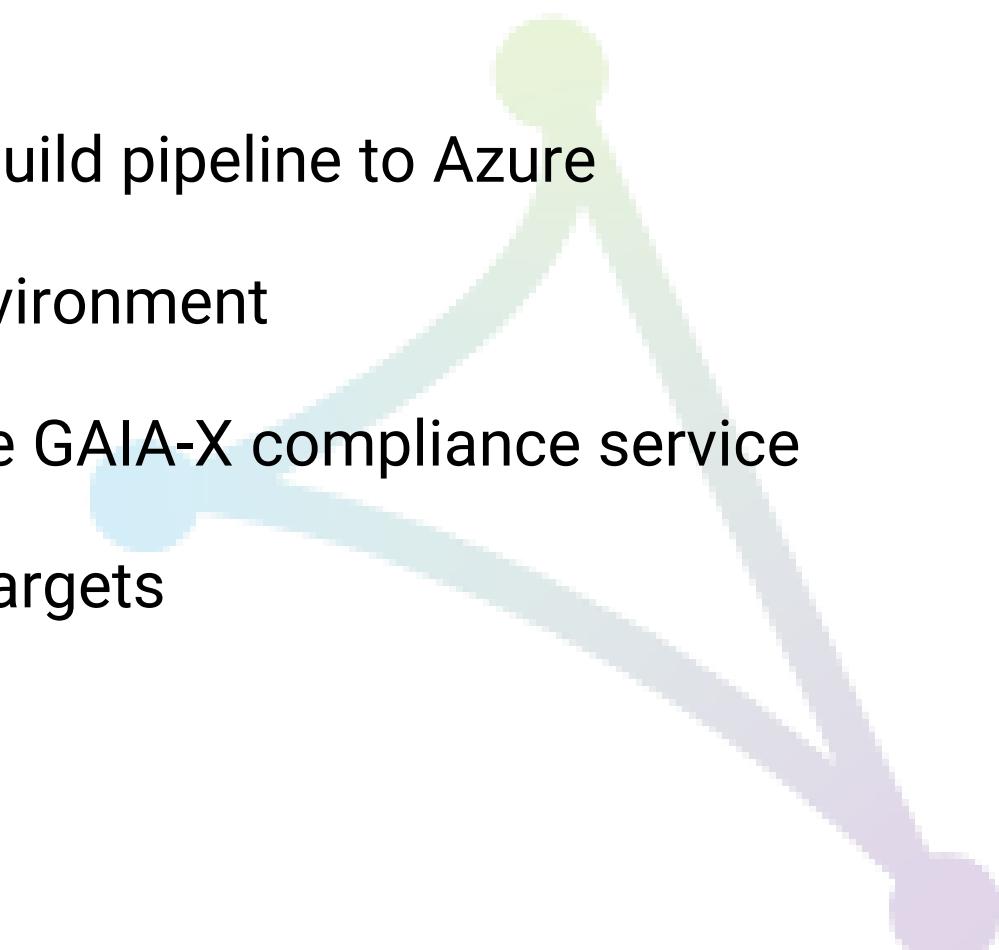
100% complete 0 open 11 closed



Let's start hacking!



Hack Challenges

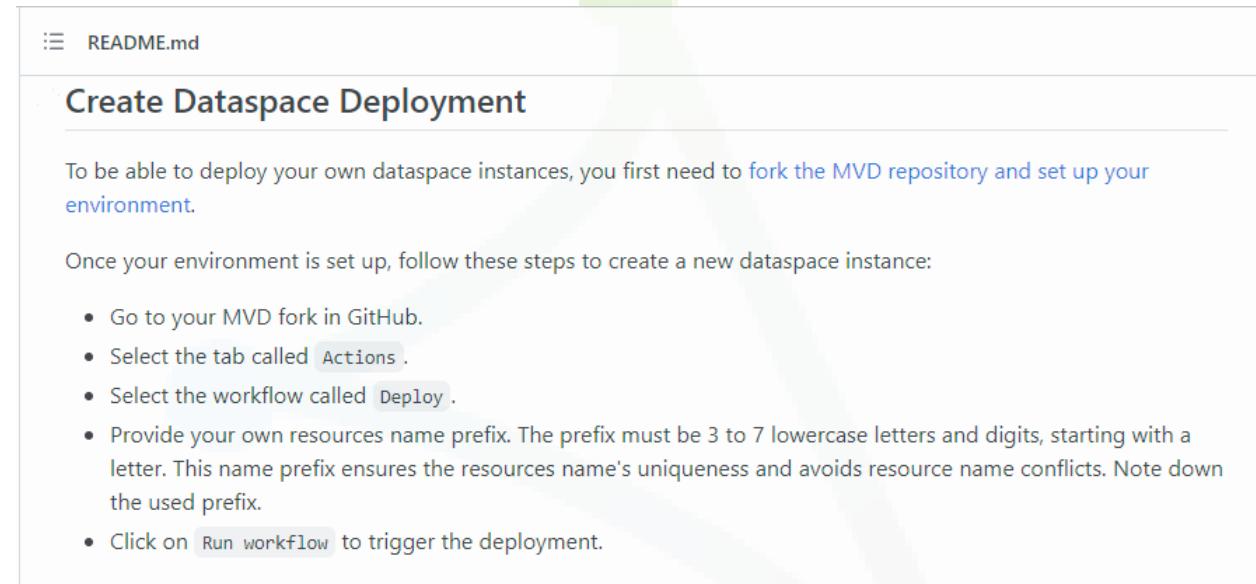
- 
1. Deploy the MVD with GitHub Action Build pipeline to Azure
 2. Deploy the MVD to your local DEV environment
 3. Verify the participant DIDs against the GAIA-X compliance service
 4. Build Pipelines to other deployment targets

Deploy with GitHub Pipeline to your Azure subscription

- Follow the instructions:

<https://github.com/eclipse-dataspaceconnector/MinimumViableDataspace#create-dataspace-deployment>

- Choose option 1



README.md

Create Dataspace Deployment

To be able to deploy your own dataspace instances, you first need to fork the MVD repository and set up your environment.

Once your environment is set up, follow these steps to create a new dataspace instance:

- Go to your MVD fork in GitHub.
- Select the tab called `Actions`.
- Select the workflow called `Deploy`.
- Provide your own resources name prefix. The prefix must be 3 to 7 lowercase letters and digits, starting with a letter. This name prefix ensures the resources name's uniqueness and avoids resource name conflicts. Note down the used prefix.
- Click on `Run workflow` to trigger the deployment.

Deploy on your local machine

- Follow the instructions:

eclipse-

dataspaceconnector/MinimumViableDataspace:

Guidance on documentation, scripts and integration steps on using the EDC project results (github.com)

- Install IDE, Java 17 for Linux, MacOS, Windows 10+

The screenshot shows a portion of a README.md file with the following content:

```
README.md
Local Development Setup

The MVD backend and MVD UI (Data Dashboard) can be run locally for testing and development.

1. Check out the repository eclipse-dataspaceconnector/DataDashboard or your corresponding fork.
2. Set the environment variable MVD_UI_PATH to the path of the DataDashboard repository. (See example below.)
3. Use the instructions in section Publish/Build Tasks system-tests/README.md to set up a local MVD environment with the exception to use the profile ui. (See example below.)
   o In order to verify your local environment works properly, also follow section Local Test Execution in system-tests/README.md .

Using the profile ui will create three MVD UIs (Data Dashboards) for each EDC participant in addition to the services described in system-tests/README.md.
```

Bash:

```
export MVD_UI_PATH="/path/to/mvd-datadashboard"
docker-compose --profile ui -f system-tests/docker-compose.yml up --build
```

PowerShell:

```
$Env:MVD_UI_PATH="/path/to/mvd-datadashboard"
docker-compose --profile ui -f system-tests/docker-compose.yml up --build
```

GAIA-X compliance and trust framework

• verify self-descriptions

- Read [How to create self descriptions](#)
- [Setup X.509 certificates](#)
- [Get all shapes \(w3c SHACL\)](#)
- [Participant Self Description Example](#)
- [GAIA-X Truest Framework Draft – Participant SD](#)
- Sign SD like the [DeltaDAO signer](#)

remove the proof and complianceCredential parts

• Manual Sign

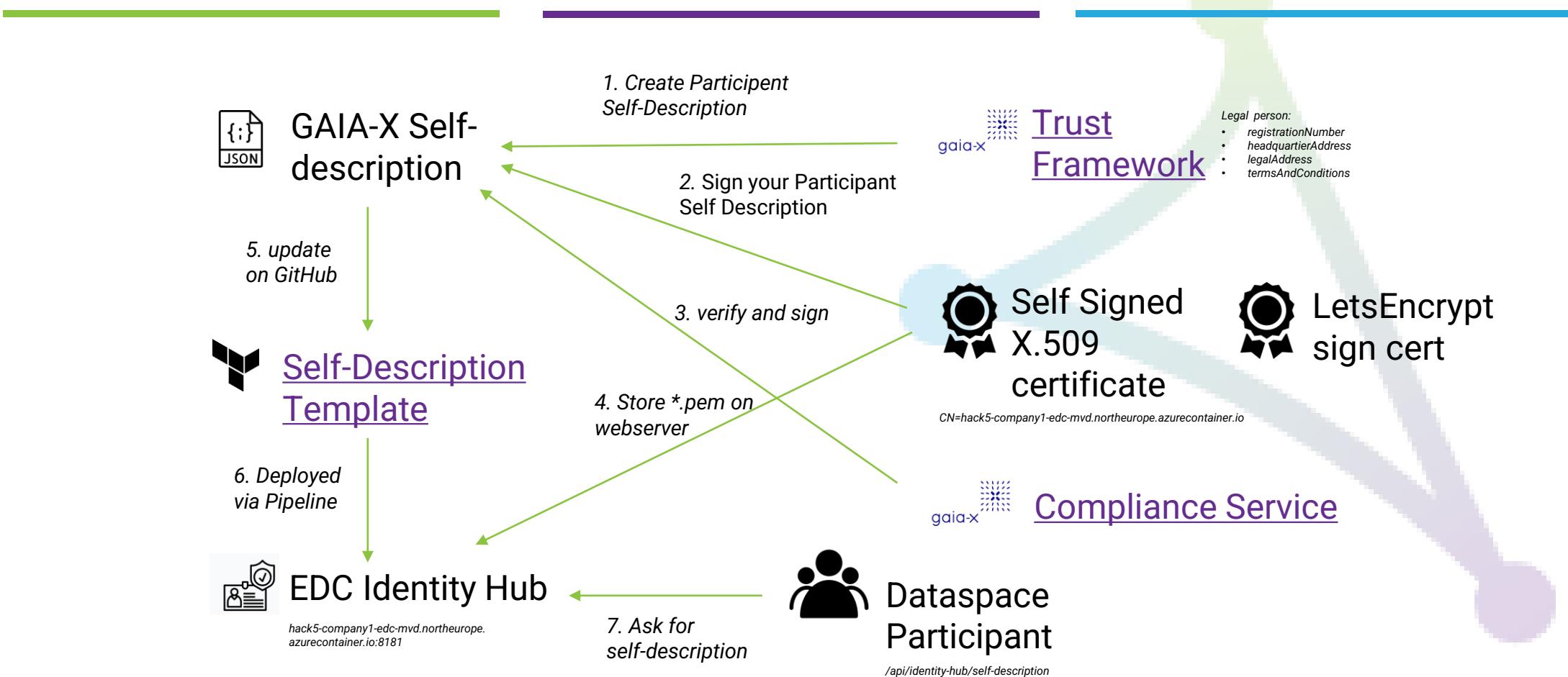
- [Closed Issue #25 Publish SSD](#)
- [Closed Issue #37 GAIA-X Hackathon June](#)
- For deployment modify the [Terraform script](#) for participant in your fork
`/build/${var.participant_name}-sdd.json`
- New [deployment](#) in your fork
- Update the new signed certificate into [ssd.tf](#)
- How the [Swagger UI](#) sign, participants verify, service-offering verify can be used?

• Automated Sign

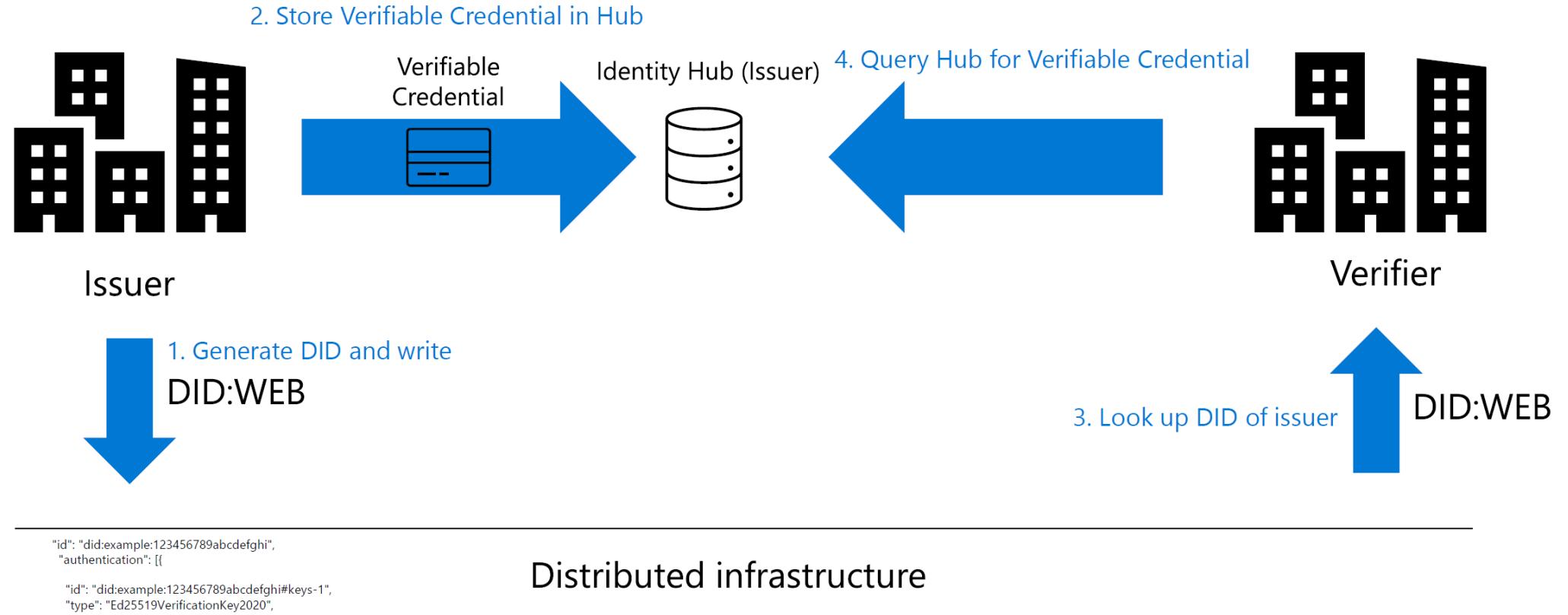
- New User Story ADR (Architecture Design Record)
- [Open issue #36 Self Description documents](#)
- Identity Hub need to provide
- Store the result:
 `${path.module}/build/${var.participant_name}-sdd.json`
- Hint: [curl_curl | Data Sources | anschoewe/curl | Terraform Registry](#)

Self-Description Workflow #86

<https://gitlab.com/gaia-x/lab/compliance/gx-compliance/#how-to-create-self-descriptions>



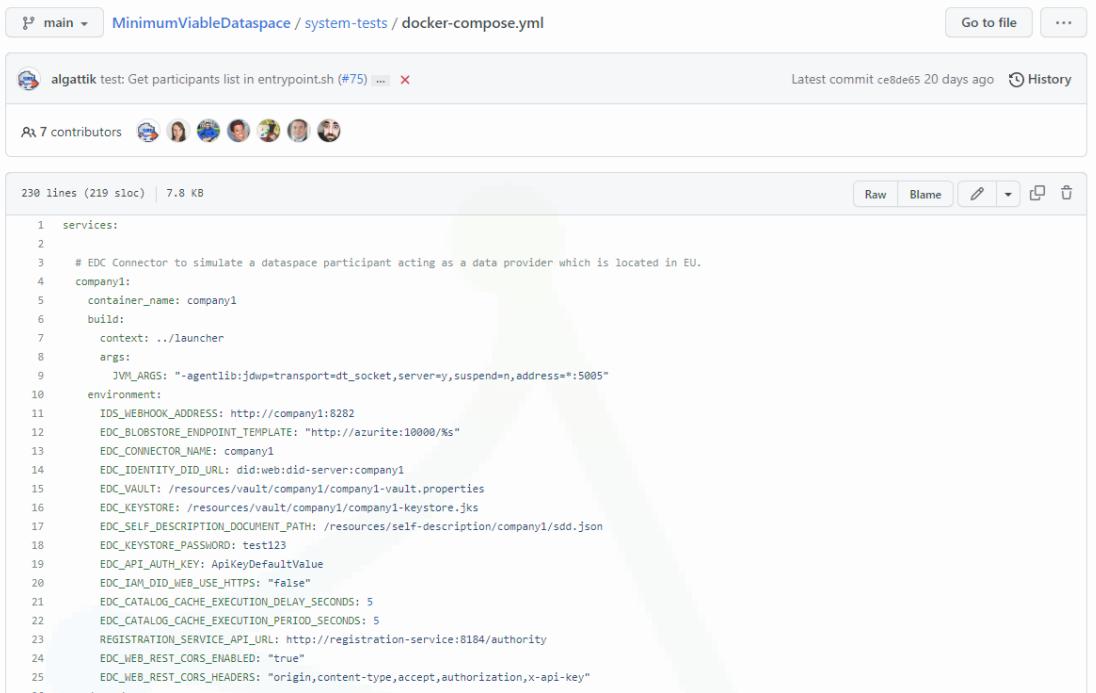
Putting it all together using identity hub



Deployment targets

- Lets discuss your deployment targets
- e.g. AKS, AWS, GCP, Edge, Openshift
- Helm scripts
- As manual deployment
- automated GitHub deployment

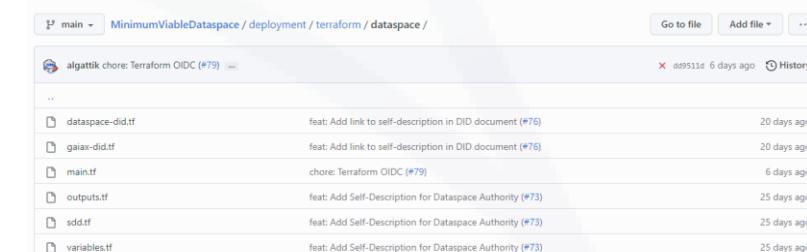
<https://github.com/eclipse-dataspaceconnector/MinimumViableDataspace/tree/main/system-tests>



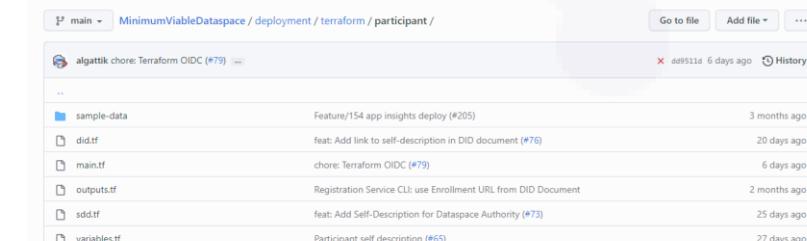
A screenshot of a GitHub repository page for 'MinimumViableDataspace / system-tests'. The file 'docker-compose.yml' is displayed. The code defines a single service named 'company1' which runs a Java application with specific JVM arguments and environment variables related to the DataSpace Connector.

```
1 services:
2
3     # EDC Connector to simulate a dataspace participant acting as a data provider which is located in EU.
4     company1:
5         container_name: company1
6         build:
7             context: ./launcher
8             args:
9                 JVM_ARGS: "-agentlib:jdwpttransport=dt_socket,server=y,suspend=n,address=:5005"
10            environment:
11                IDS_WEBHOOK_ADDRESS: http://company1:8282
12                EDC_BLOBSTORE_ENDPOINT_TEMPLATE: "http://azurite:10000/%s"
13                EDC_CONNECTOR_NAME: company1
14                EDC_IDENTITY_DID_URL: did:web:did-server:company1
15                EDC_VAULT: /resources/vault/company1/company1-vault.properties
16                EDC_KEYSTORE: /resources/vault/company1/company1-keystore.jks
17                EDC_SELF_DESCRIPTION_DOCUMENT_PATH: /resources/self-description/company1/sdd.json
18                EDC_KEYSTORE_PASSWORD: test123
19                EDC_API_AUTH_KEY: ApiKeyDefaultValue
20                EDC_IAM_DID_WEB_USE_HTTPS: "false"
21                EDC_CATALOG_CACHE_EXECUTION_DELAY_SECONDS: 5
22                EDC_CATALOG_CACHE_EXECUTION_PERIOD_SECONDS: 5
23                REGISTRATION_SERVICE_API_URL: http://registration-service:8184/authority
24                EDC_WEB_REST_CORS_ENABLED: "true"
25                EDC_WEB_REST_CORS_HEADERS: "origin,content-type,accept,authorization,x-api-key"
```

<https://github.com/eclipse-dataspaceconnector/MinimumViableDataspace/tree/main/deployment/terraform>



A screenshot of a GitHub repository page for 'MinimumViableDataspace / deployment / terraform / dataspace'. It shows a directory structure with files like 'dataspace-did.tf', 'gaiax-did.tf', 'main.tf', 'outputs.tf', 'sdd.tf', and 'variables.tf'. Each file has a commit history above it.



A screenshot of a GitHub repository page for 'MinimumViableDataspace / deployment / terraform / participant'. It shows a directory structure with files like 'sample-data', 'did.tf', 'main.tf', 'outputs.tf', 'sdd.tf', and 'variables.tf'. Each file has a commit history above it.