



gaia-x

# Track 6 – Deployment / Minimal Viable Gaia-X Track Onboarding Presentation

–

Matej Feder, Kai Meinke



gaia-x

# 01

Bootstrapping a Minimal  
Viable Gaia-X ecosystem  
(Ocean Protocol)

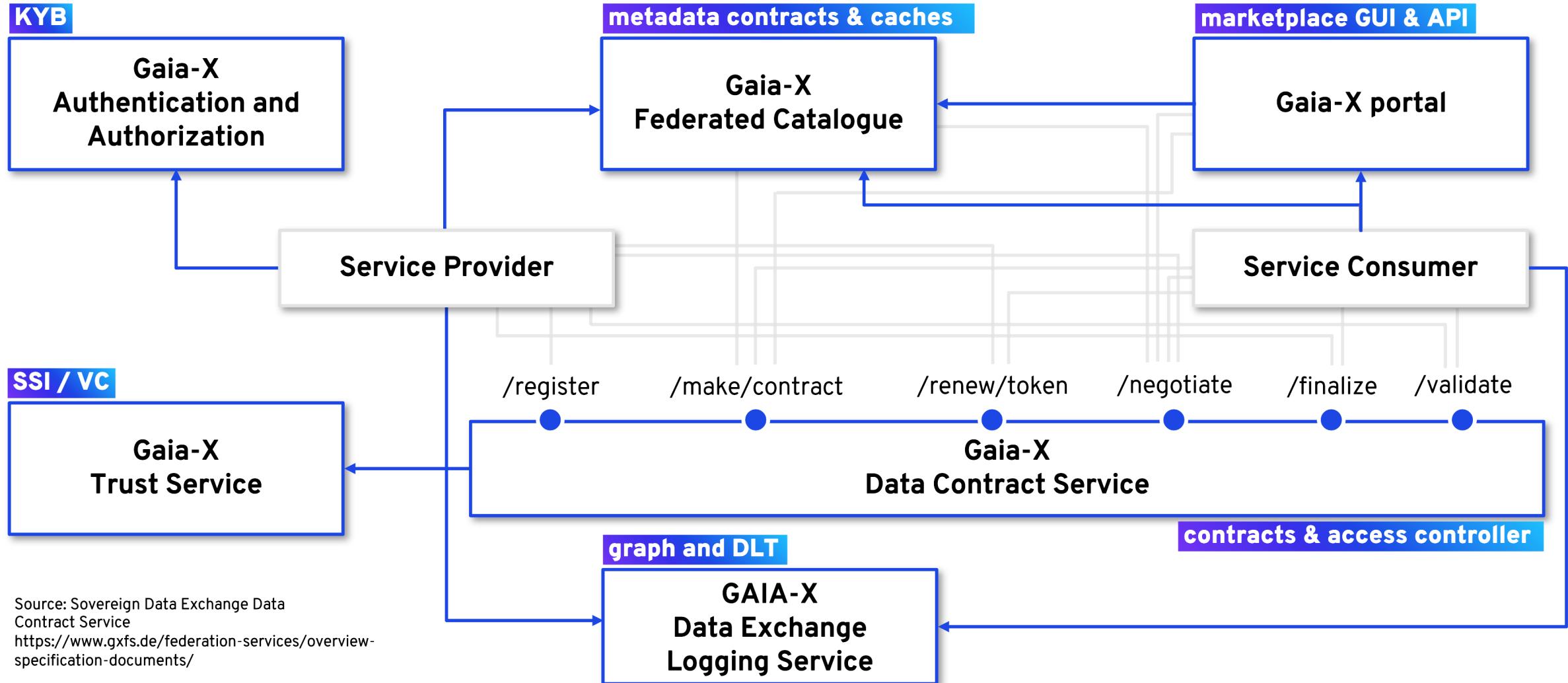
Kai Meinke

# 01 – Bootstrapping a Minimal Viable Gaia-X ecosystem



- **Session:** Introduction - How to bootstrap a decentralized ecosystem enabling technical data sovereignty and how to build towards Gaia-X Trust and Compliance
- **Goals:**
  - understand how a decentralized Web3.0 ecosystem is composed
  - understand how a decentralized Web3.0 ecosystem enables technical data sovereignty and aligns with the Gaia-X vision and mission
  - understand how we build towards Gaia-X Trust and Compliance

# 01 – Bootstrapping a Minimal Viable Gaia-X ecosystem



# 01 – Bootstrapping a Minimal Viable Gaia-X ecosystem



gaia-x

Publish Profile Connect Wallet ⚙️

## MVG Portal Demonstrator

A platform to find, publish and consume Data Services in the Gaia-X Test Network.

powered by

ocean

**START NOW**

Gaia-X on Ocean Protocol Academy

Gaia-X aims to be a decentralized, secure, transparent digital ecosystem for the European data economy. Understand the core concepts of Gaia-X and Ocean Protocol and learn how a Gaia-X built on Distributed Ledger Technology is operable today.

ADALIN-64 Heatmap der Ladensäuleninfrastruktur 0x8808...6441 ALGORITHM

Dieser Algorithmus erstellt eine Heatmap für die Umsetzung des gegebenen Anwendungsfalls

No price set ⓘ GAIAX-Testnet

JOCKRI-0 Heatmap der Ladensäuleninfrastruktur 0x8808...6441 ALGORITHM

Dieser Algorithmus erstellt eine Heatmap für die Umsetzung des gegebenen Anwendungsfalls

No price set ⓘ GAIAX-Testnet

PLEHAD-84 Privacy Preserving Business Analysis 🎯 Algorithm 5 OCEAN ALGORITHM

This data service offering consists of the algorithm to facilitate a descriptive analysis of protected cust...

TENSHA-17 Privacy Preserving Business Analysis 🎯 Dataset 5 OCEAN DATA SET

About this Data Service Offering safeFBDC, the Financial Big Data Cluster, joins the 2nd Gaia-X Ha...

POWPEL-68 AML Analysis Algorithm 2 OCEAN ALGORITHM

About this Data Service Offering safeFBDC, the Financial Big Data Cluster, joins the 2nd Gaia-X Ha...

TASBAR-78 AML Analysis Dataset 5 OCEAN DATA SET

About this Data Service Offering safeFBDC, the Financial Big Data Cluster, joins the 2nd Gaia-X Ha...

UBIPUF-74 CNN Object Detection Algorithm 5 OCEAN ALGORITHM

Status Type Type About this Data Service Offering This data service offering consists of a traffic imag...

INCPOR-19 CNN Object Detection Sample Data 25 OCEAN DATA SET

Status Type Type About this Data Service Offering This data service offering consists of data for a traff...

LOQPOR-49 YOLOv5 Object Classification 🎯 Sample Algorithm 4 OCEAN ALGORITHM

This data service offering consists of a real-time object detection algorithm, which identifies specific o...

INSLOB-11 YOLOv5 Image Classification Sample Data 4 OCEAN DATA SET

This data service offering consists of data for a real-time object detection algorithm, which identifies s...

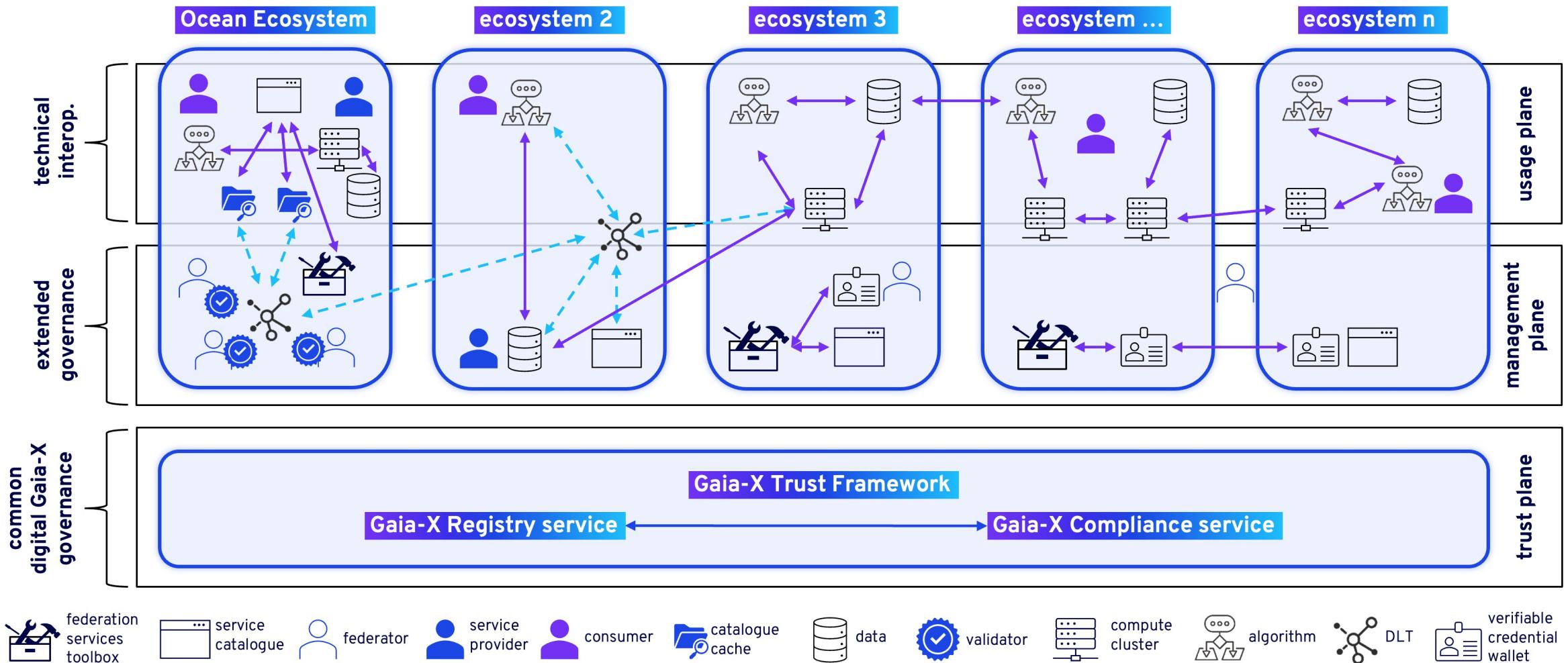
VOLFIS-97 Freesurfer Average Brain Surfaces fsaverage for Cortical Morphometr... 1 OCEAN DATA SET

Collection of standardized brain surfaces in fsaverage space curated by templateflow in BIDS-style a...

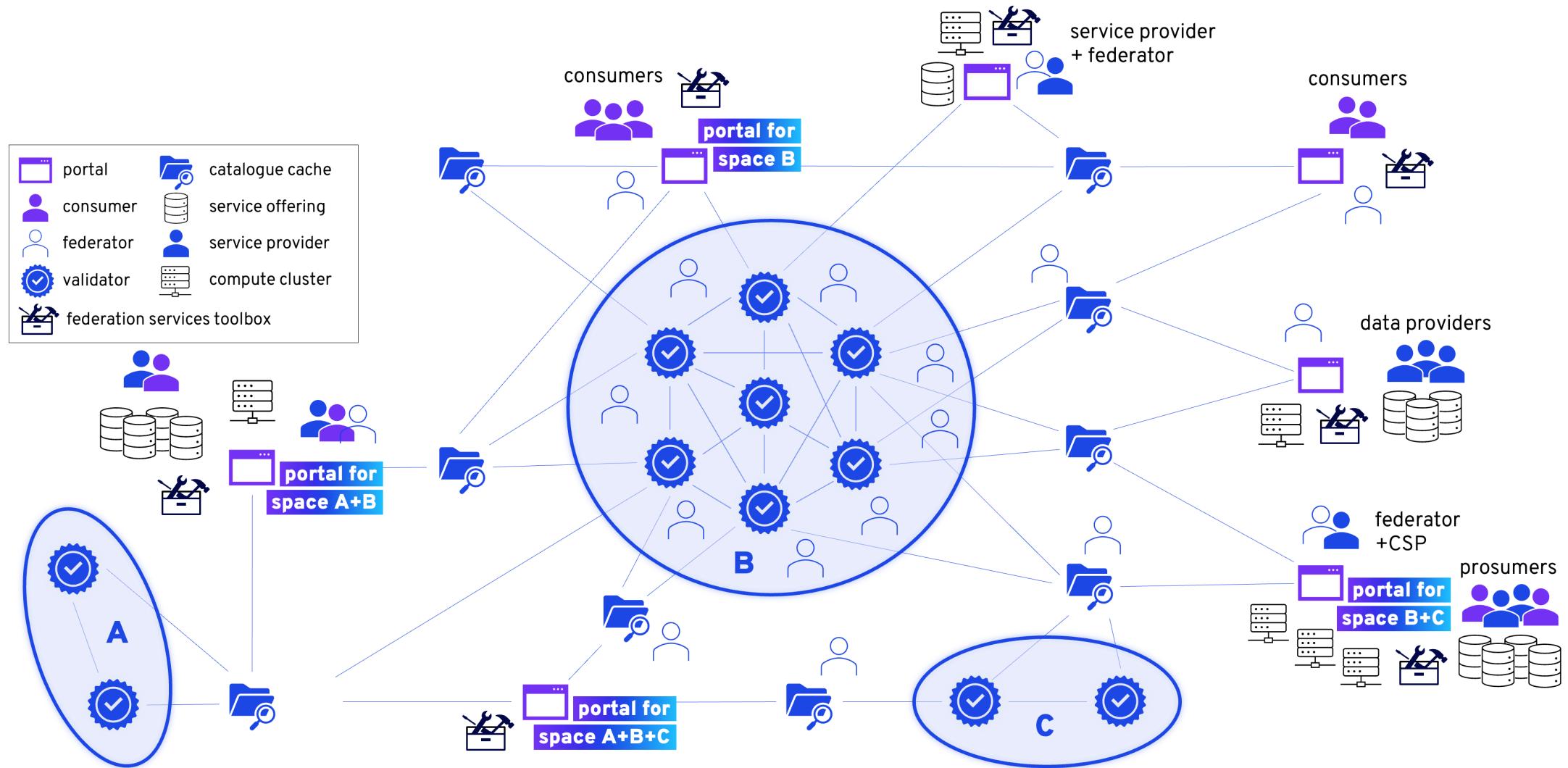
CALSHA-66 Descriptive statistics for tabular data Free ALGORITHM

Descriptive statistics based on Pandas describe(). For numeric data, the result's index will include cou...

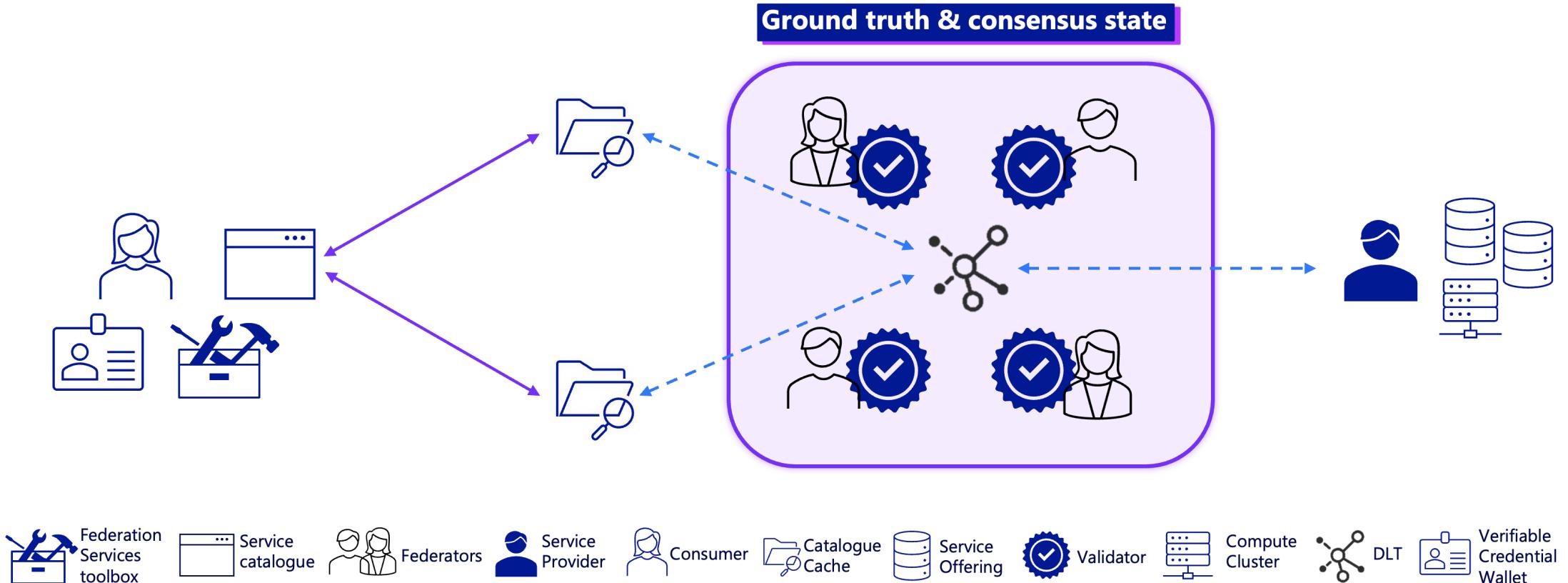
# 01 – Bootstrapping a Minimal Viable Gaia-X ecosystem



# 01 – Bootstrapping a Minimal Viable Gaia-X ecosystem



# 01 – Bootstrapping a Minimal Viable Gaia-X ecosystem





gaia-x

02

Bootstrapping a Structura-X ecosystem  
(Threefold)

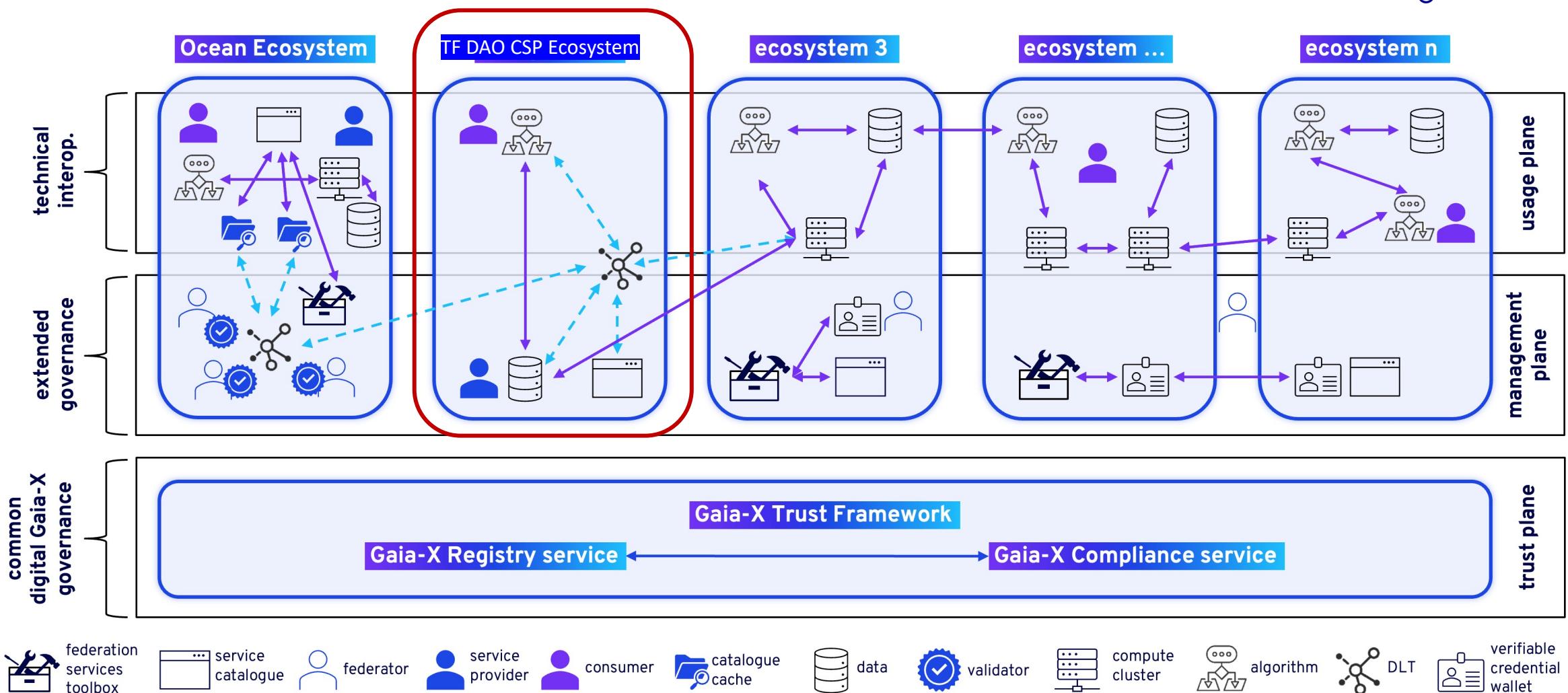
Geert Machtelinckx, Weynand Kuijpers

## 02 - Bootstrapping a Structura-X ecosystem (Threefold)



- **Session:** Bootstrap a Gaia-X ecosystem of interconnected hardware devices, owned by multiple cloud operators, taking up operationalisation issues (interoperability, security, privacy, commercial model, governance)
- ThreeFold Tech has developed open-source technology that combines the pieces of self-description and components of the trust framework (DID, VC) and brings a model that addresses interoperability, security, privacy-enabling, a commercial model and a governance on the table, in a trajectory to achieve a fully operationally ready Gaia-X cloud provider ecosystem (as pursued by Structura-X initiative). Hackathon will go through the concept, and go through a concrete setup.

## 02 – Bootstrapping a Structura-X ecosystem



## 02 – Bootstrapping a Structura-X ecosystem



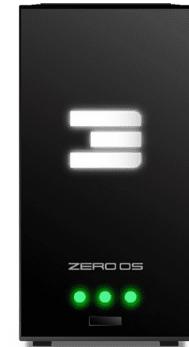
What solar panels did for the energy industry, we do for Internet capacity...  
... making cloud interoperable, decentralized and ready to run on the edge.



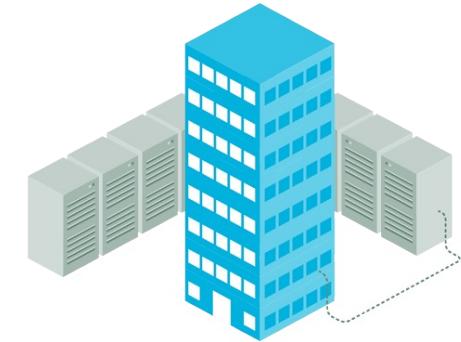
POWER PLANT



SOLAR PANEL



3NODE



DATACENTER



## 02 – Bootstrapping a Structura-X ecosystem



THREEFOLD

- Required features to get a Structura-X ecosystem

- interoperability, resilience, security, privacy, regulatory compliance, commercial model, governance (neutrality)

- Hacking Session using tooling

- Wallet and Portal
  - Zero-OS Bootstrap image
  - Terraform & JS for selecting capacity, ‘playground’ for deploying workloads
  - Signed workloads
  - TFChain blockchain / model



gaia-x

# 03

Self-Description of MVG  
infrastructure and service offerings

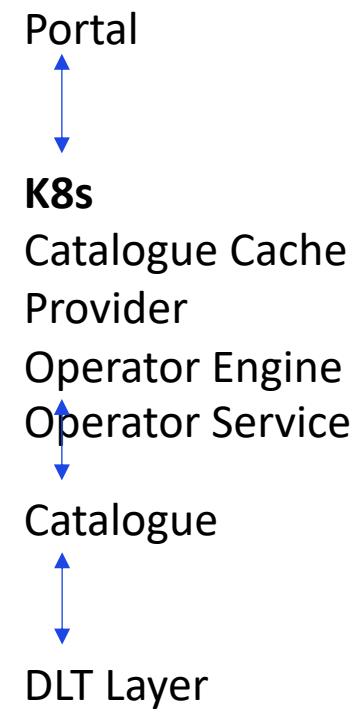
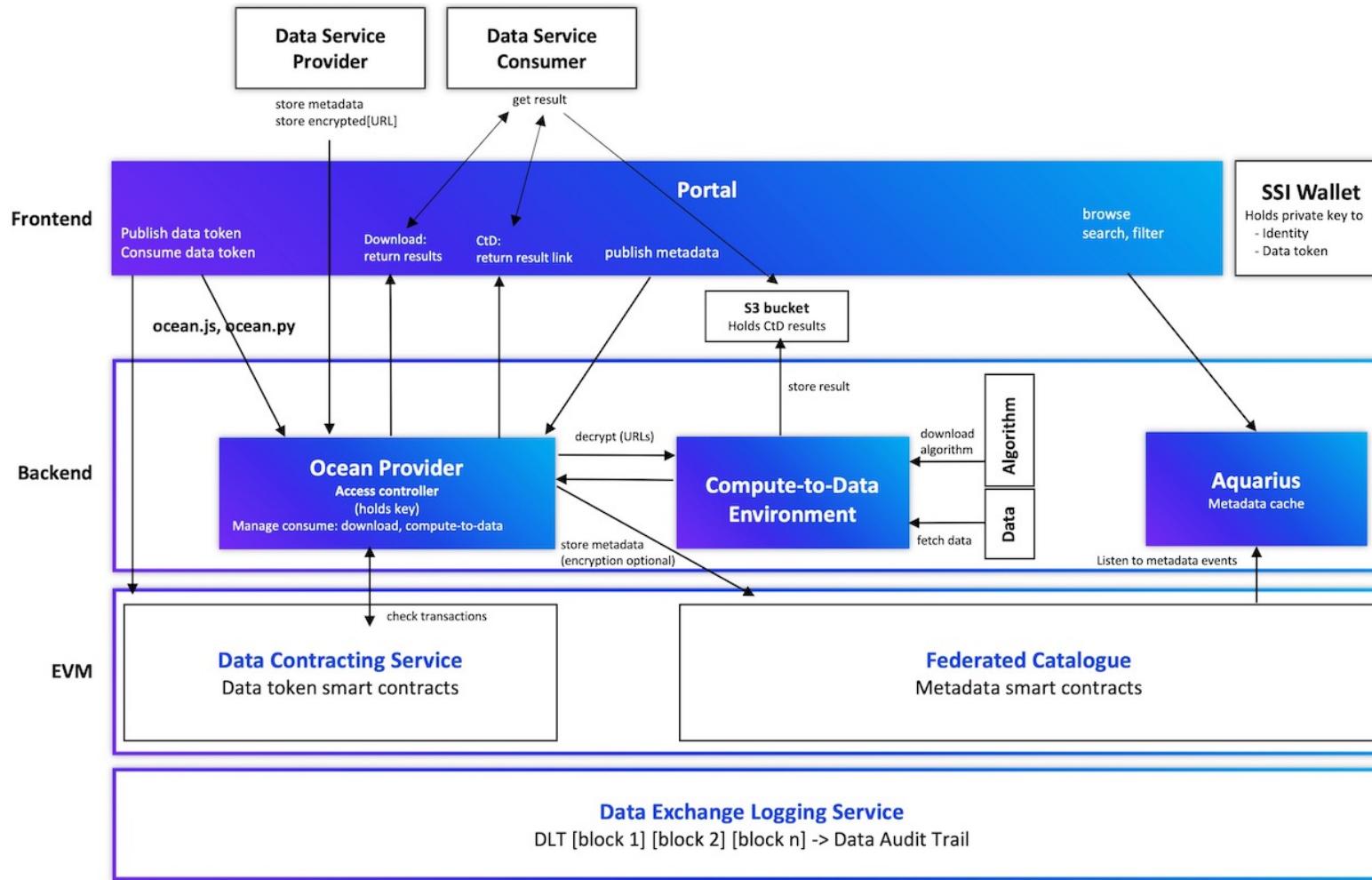
Frederic Schwill, Alexander Eger

## 03 - Self-Description of MVG infrastructure and service offerings



- **Session:** Describing the MVG infrastructure (Kubernetes cluster, Federation Services, etc.) and service offerings through self-descriptions, enabling transparency, based on the work of the SD Self-Description and Service Characteristics.
- **Goals:**
  - Understand the MVG Infrastructure and its backend architecture
  - Describe the infrastructure using service composition and Self-Descriptions
  - Describe service offerings using Self-Descriptions

# 03 - Self-Description of MVG infrastructure and service offerings



# 03 - Self-Description of MVG infrastructure and service offerings



SAGOCT-74

**Traffic Image Classification 🚗**

**Sample Data**

deltaDAO AG

This data service offering consists of data for a traffic image classification algorithm, which identifies r...

5 OCEAN

GAIA-X Testnet

<https://minimal-gaia-x.eu/asset/did:op:d0bBC407c5Aa10d7Fd729A4bc00a9DC43535Cfe0>

VOLSHE-94

**Traffic Image Classification 🚗**

**Algorithm**

deltaDAO AG

This data service offering consists of a traffic image classification algorithm, which identifies road safet...

5 OCEAN

GAIA-X Testnet

<https://minimal-gaia-x.eu/asset/did:op:b562a807b0db22bE0AD4FD53b35c460e17128F13>

gaia-x

## Traffic Image Classification 🚗 Algorithm

GAIA-X Testnet

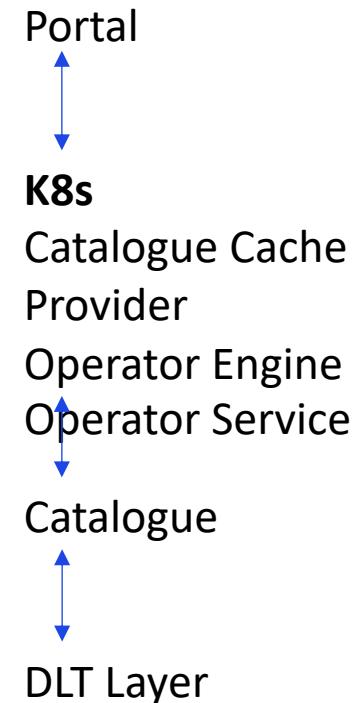
ALGORITHM | Voulble Shell Token — VOLSHE-94

Published By deltaDAO AG  
6 months ago — updated 24 days ago

This data service offering consists of a traffic image classification algorithm, which identifies road safety relevant objects in a sample set of images. The algorithm uses features learned by a deep convolutional neural network to detect traffic related objects.

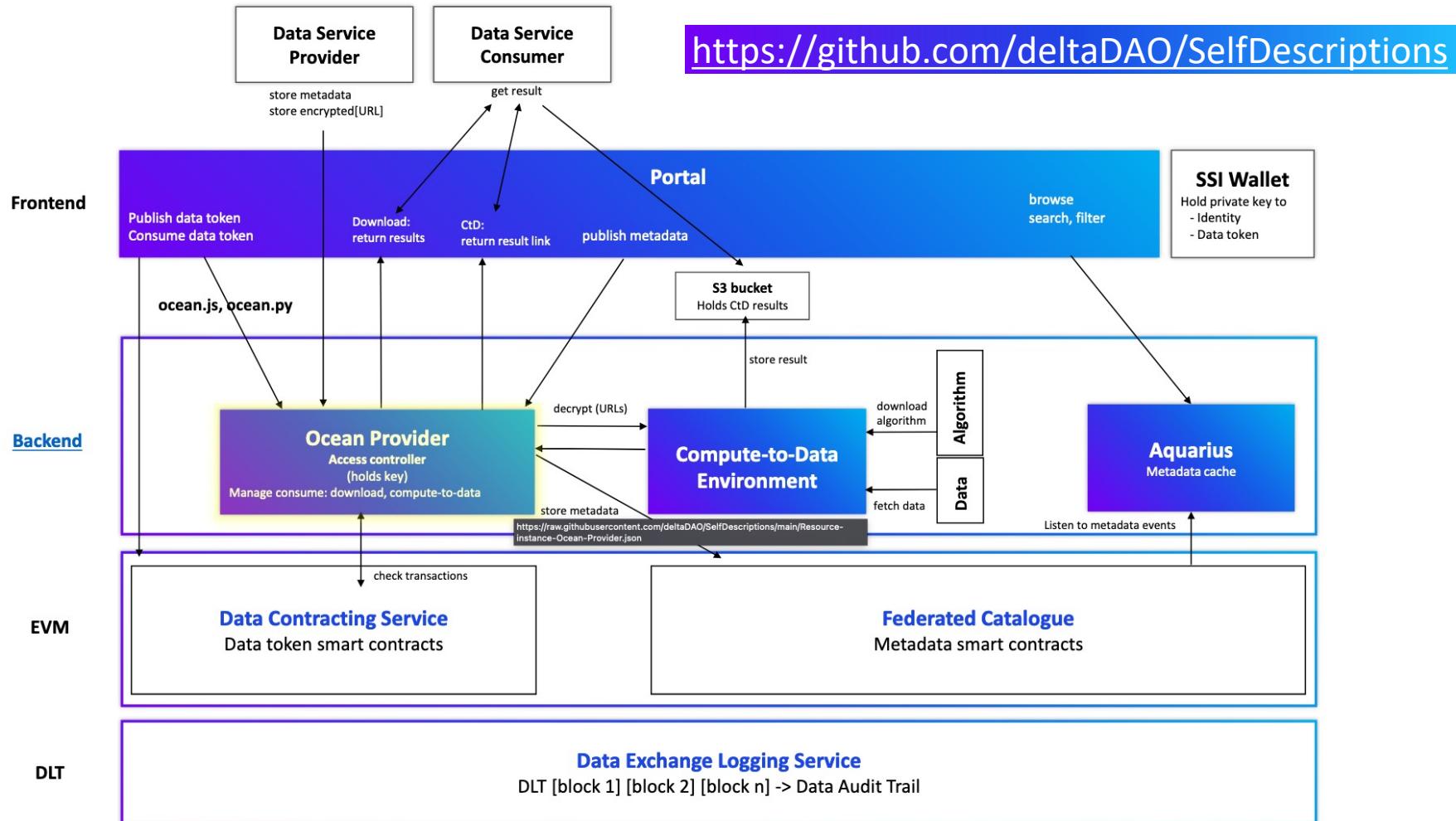
Service Online / Available  
Type Machine Learning  
Domain Mobility

The sample dataset and the whitelisted algorithm are listed in the [Minimal Viable Gaia-X Portal here](#).



# 03 - Self-Description of MVG infrastructure and service offerings

[https://raw.githubusercontent.com/deltaDAO/SelfDescriptions/main/CtD\\_Architecture.pdf](https://raw.githubusercontent.com/deltaDAO/SelfDescriptions/main/CtD_Architecture.pdf)





gaia-x

# 04

Rapid Cloud-Agnostic Deployment of  
Federation Services

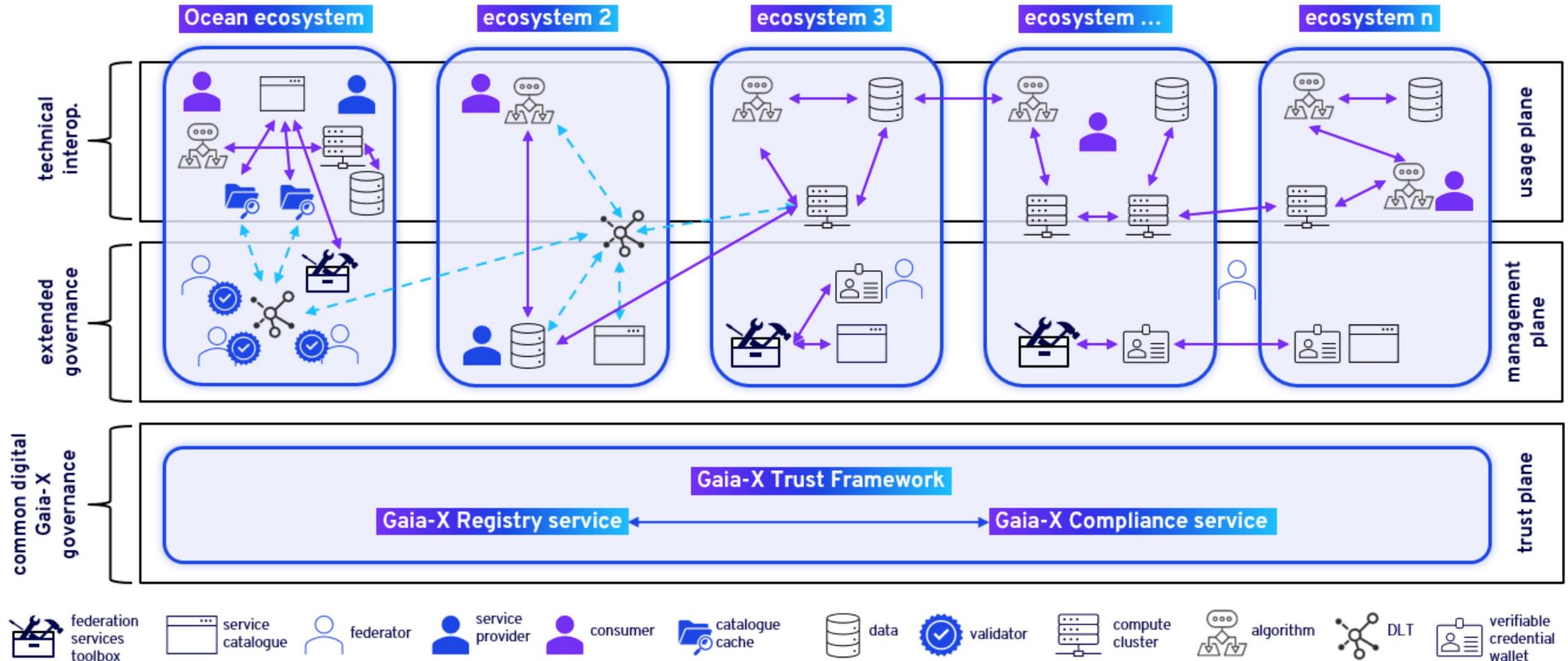
Julian Da Silva, Kai Meinke

## 04 - Rapid Cloud-Agnostic Deployment of Federation Services



- **Session:** Deploy a Federation Service, the Catalogue Cache, in a cloud-agnostic, modular and portable manner leveraging the open-source VMware Tanzu Community Edition. Connect it to the decentralized Core Grid (GX test network) in minutes.
- **Goals:**
  - Deploy a Federation Service on any cloud with VMware Tanzu
  - Establish abstraction layer to free apps from infrastructure
  - Build, run & manage applications on any cloud

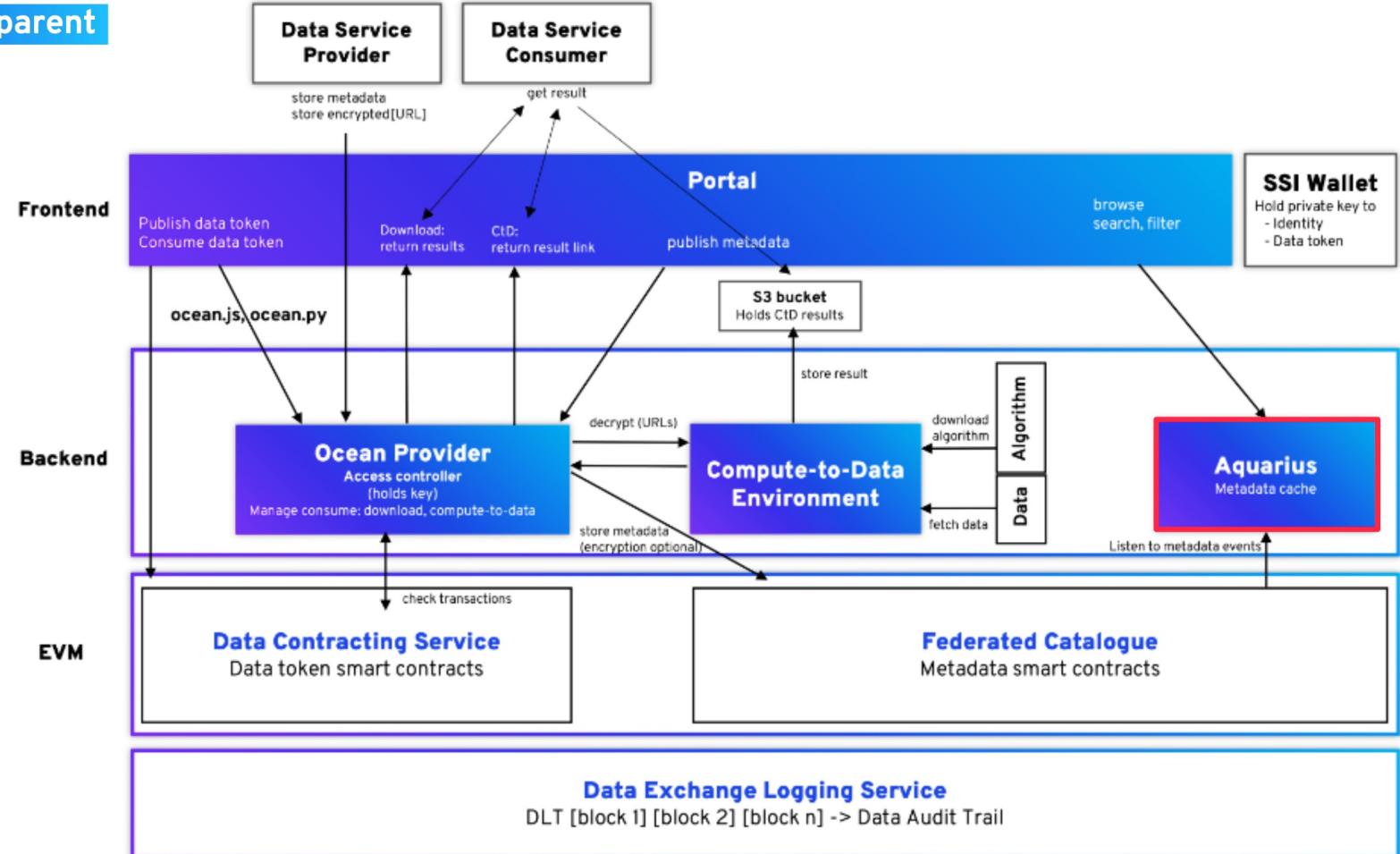
# 04 - Rapid Cloud-Agnostic Deployment of Federation Services



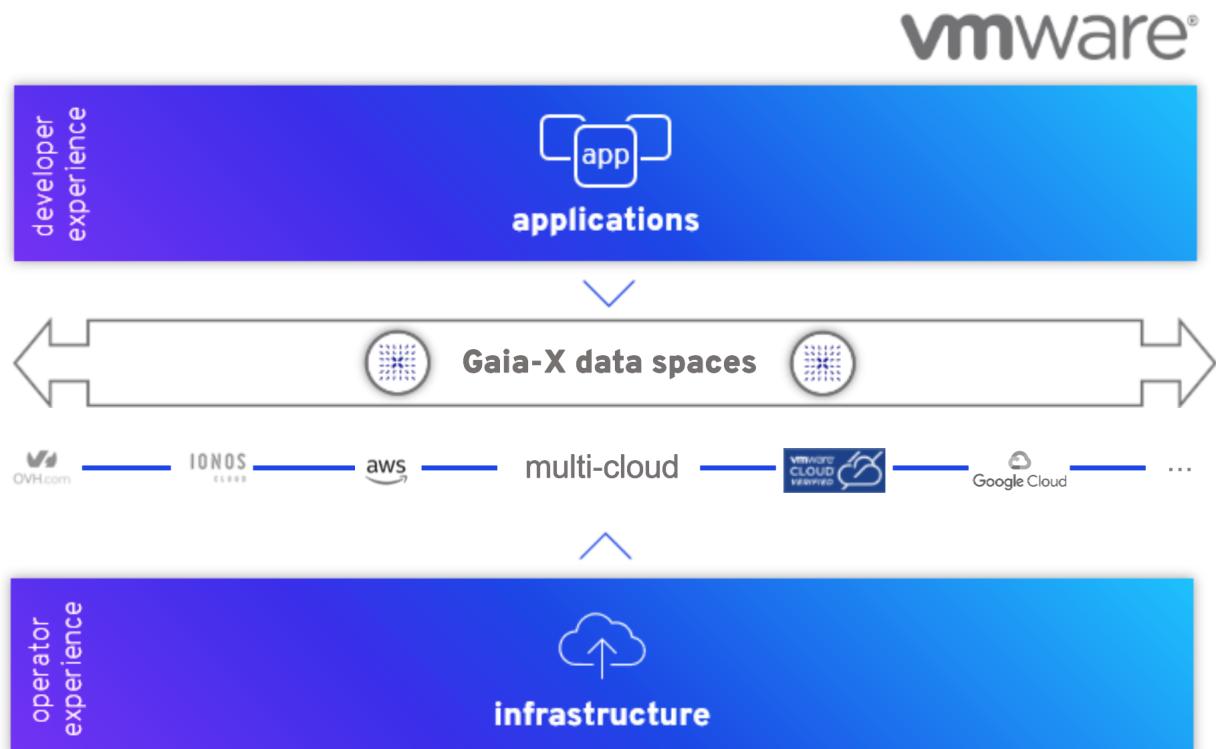
# 04 - Rapid Cloud-Agnostic Deployment of Federation Services



built on a permissionless and transparent  
decentralized core grid



# 04 - Rapid Cloud-Agnostic Deployment of Federation Services



OBSERVABILITY	VISUALIZATION	Grafana
	MONITORING & ALERTING	Prometheus
	LOG FORWARDING	fluentbit
BUILD AND DEPLOY	SERVERLESS	Knative
	REGISTRY	HARBOR
	APP CATALOG*	Kubeapps
	BUILD SERVICE*	kpack
SERVICES	DATA PROTECTION	VELERO
	AUTHENTICATION	PINNIPED
	CONFORMANCE	SONOBUOY
	CERTIFICATES	CERT-MANAGER
	POLICY	Open Policy Agent
CONNECTIVITY	INGRESS & LOAD BALANCING	CONTOUR
	CONTAINER NETWORKING	MULTUS
	EXTERNAL DNS	ANTREA
		CALICO
COMPUTE RUNTIME	kubernetes	
	LIFECYCLE MANAGEMENT	CLUSTER API
	PACKAGE MANAGEMENT	CARVEL
PROVIDERS	LOCAL DEVELOPMENT	docker
	ON PREMISES	vmware vSphere
	PUBLIC CLOUD	aws

Image is licensed under a CC BY 4.0 license, VMware.  
Remixed by deltaDAO AG for illustration purposes.



gaia-x

# 05

## Pilot-005 Deployment

Matej Feder, Roman Hros

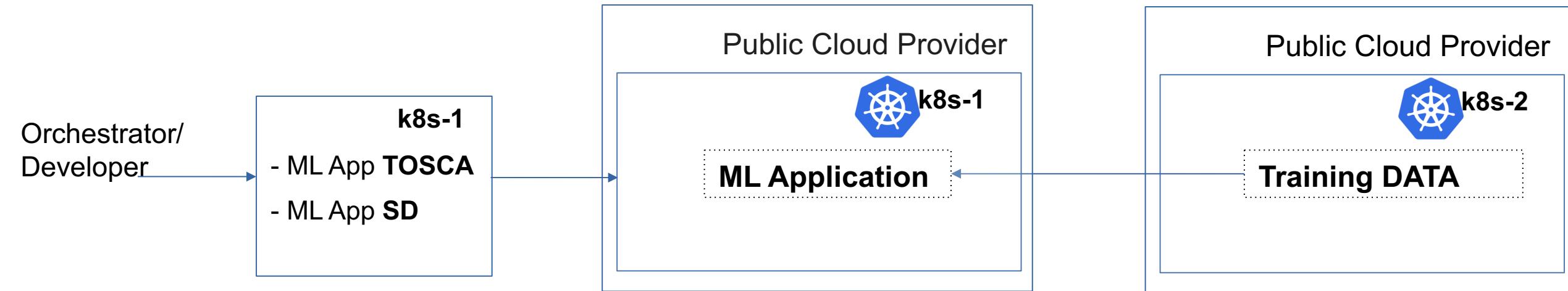
## 05 - Pilot-005 Deployment

- **Session:** Pilot-005 Deployment
- **Goals:**
  - Integrate GAIA-X Catalogue to the MVG Pilot-005 architecture (Mentor: Matej Feder)
  - Complete the integration of the Authorization provider to the MVG Pilot-005 architecture (Mentor: Pawel Kowalik)

# 05 - Pilot-005 Deployment

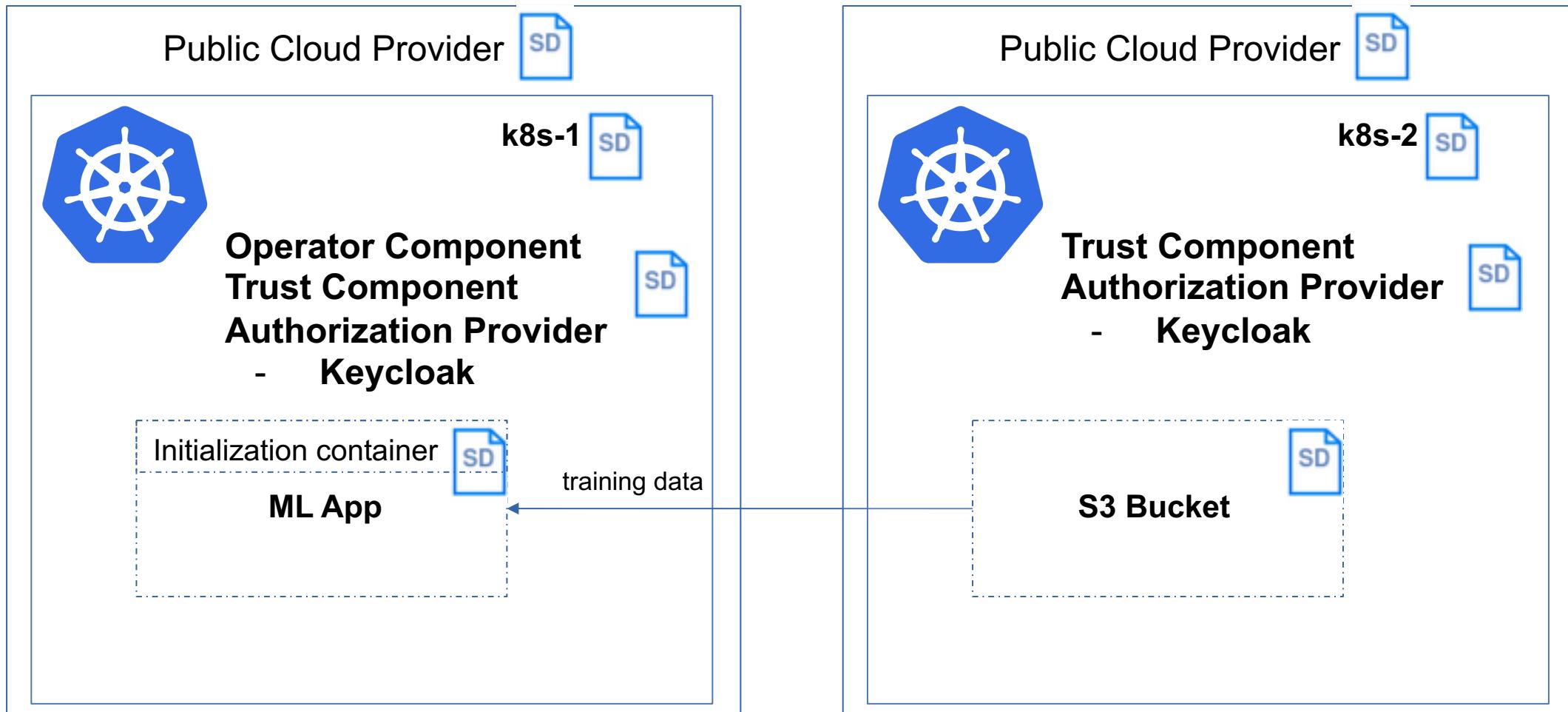
## High Level Overview

- GDPR complaint?



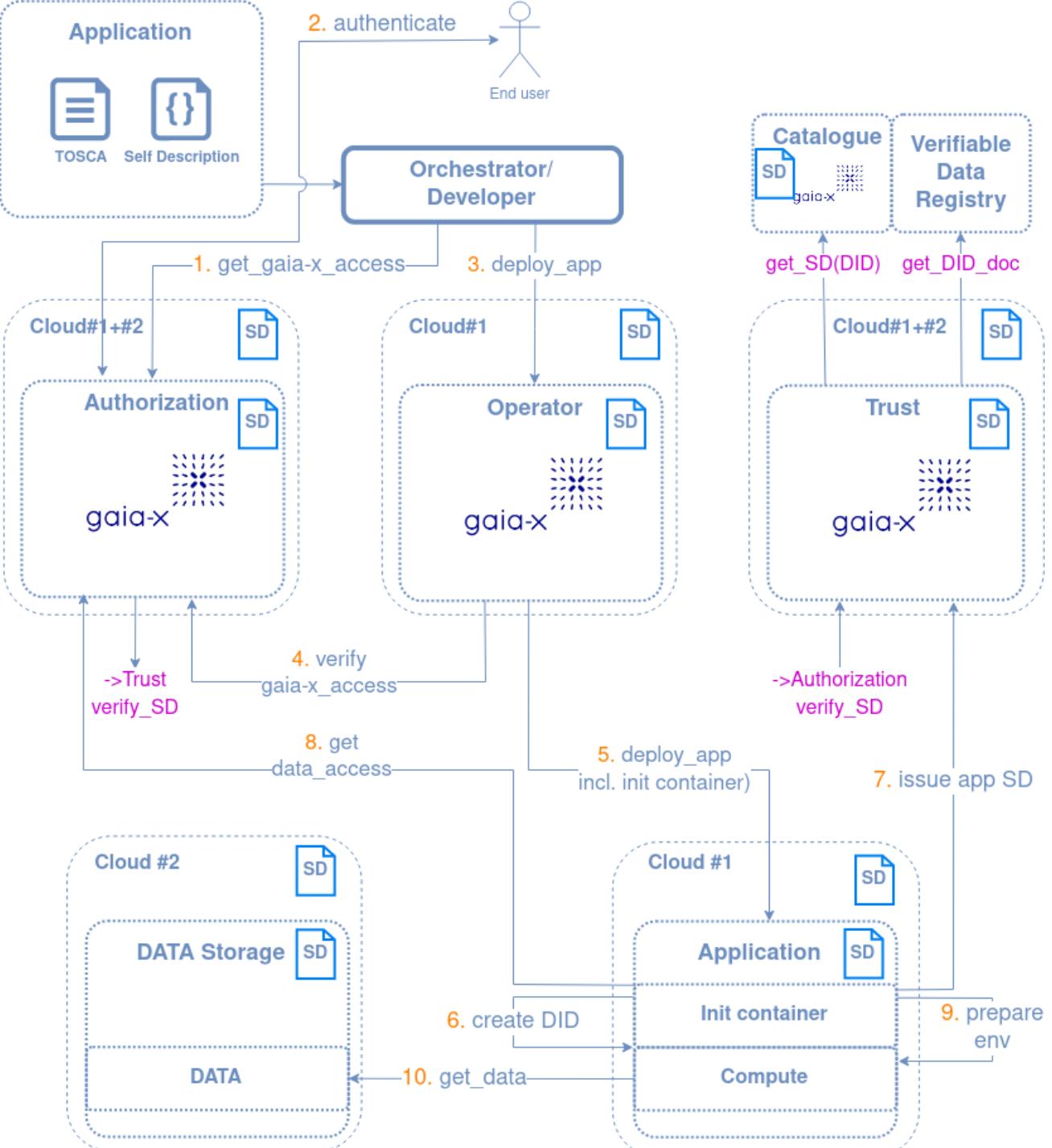
# 05 - Pilot-005 Deployment

## High Level Overview



# 05 - Pilot-005 Deployment

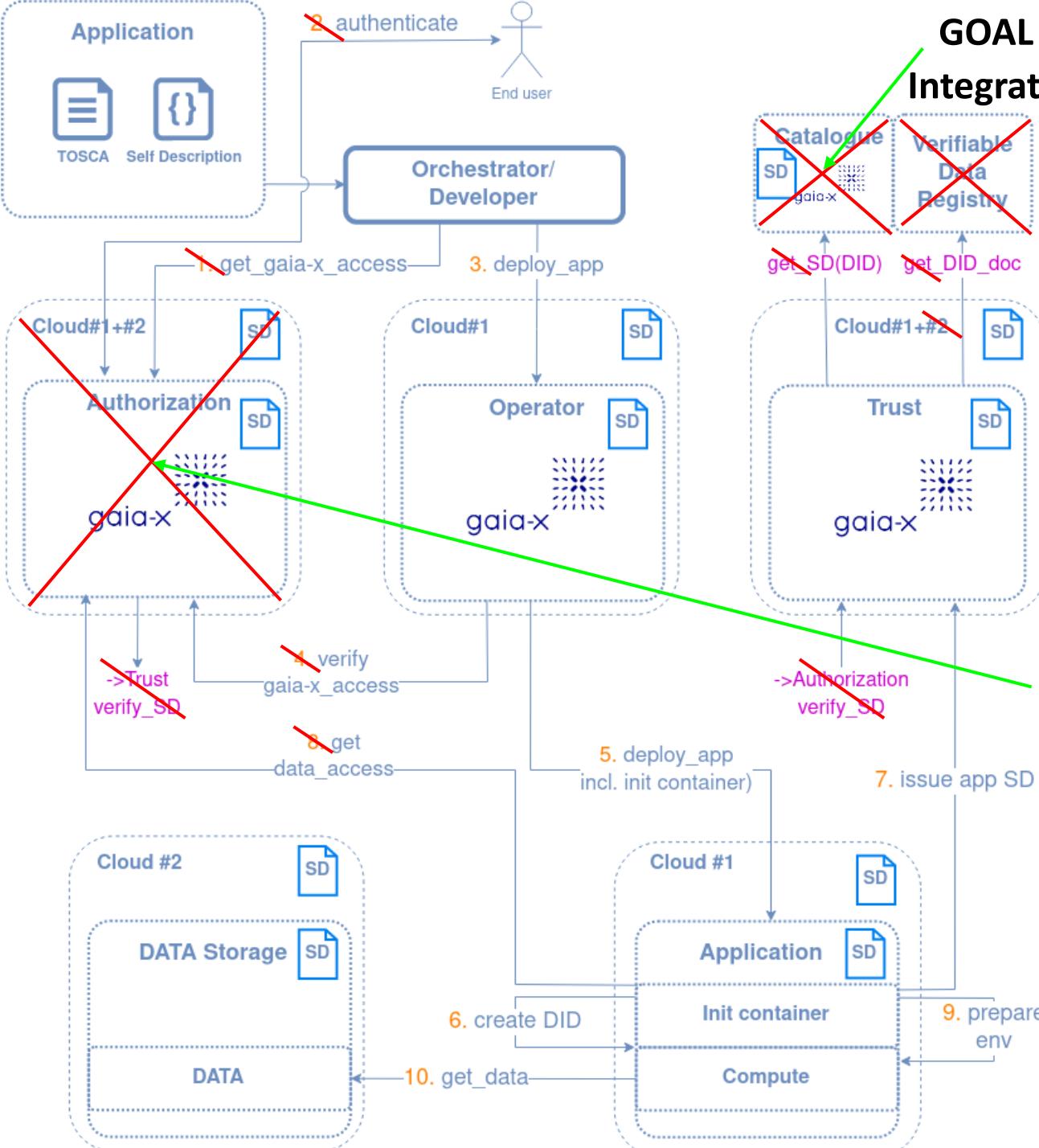
## Desired state



# 05 - Pilot-005

## Deployment

# Current state



# GOAL Hackathon#3

## Integrate GX Catalogue

# GOAL Hackathon#3

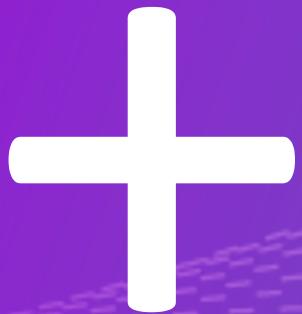
## Integrate Authorization component

## 05 - Pilot-005 Deployment

- **Goals:**
- Integrate GAIA-X Catalogue to the MVG Pilot-005 architecture (Mentor: Matej Feder)
  - [WIKI](#)
  - [GitLab Milestone](#)
- Complete the integration of the Authorization provider to the MVG Pilot-005 architecture (Mentor: Paweł Kowalik)
  - [GitLab Milestone](#)



gaia-x



# Minimal Viable Gaia-X Onboarding and MVG Academy



# Proof of Attendance NFT

Use the Gaia-X Web 3.0 Ecosystem and get your Gaia-X hackathon #3 NFT

Visit [academy.delta-dao.com](https://academy.delta-dao.com) to get started



gaia-x



Any questions or remarks?



gaia-x

# GO

Enjoy the Gaia-X Hackathon #3