

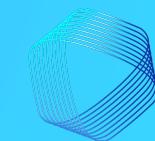


gaia-x

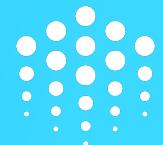
# Gaia-X Hackathon #3

-

Intermediate Results Day 1



deltaDAO



ocean

# Agenda

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- 01** Hackathon Statistics
- 02** Service & Tool Support Track
- 03** GXFS Track
- 04** ACME Track
- 05** Eclipse Dataspace Connector Track
- 06** Deployment / Minimal Viable Gaia-X Track

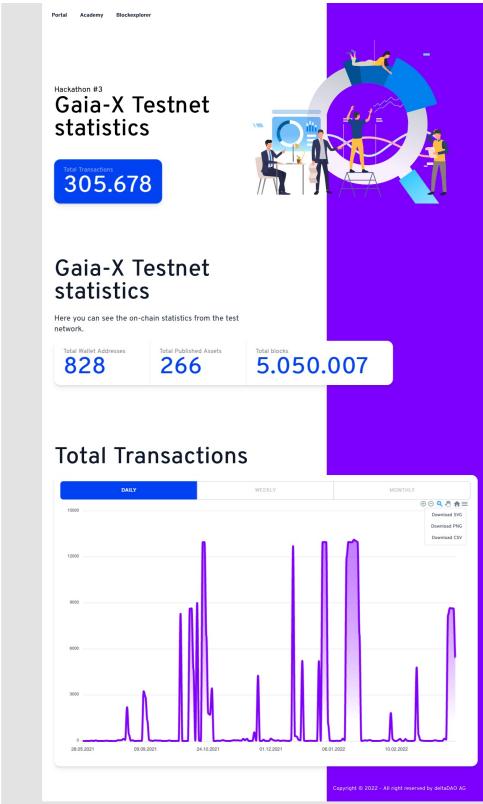


gaia-x

## Hackathon Statistics

01

# Hackathon Statistics Minimal Viable Gaia-X



May 2021 – March 2022

Total Transactions

**314.087**

**Hackathon 3**

4622 Transactions

94 Gaia-X Participant  
Credentials issued

Total Wallet Addresses

**1.008**

Total Published Assets

**266**

Total blocks

**5.071.189**

## Repositories

<https://github.com/deltaDAO/gaia-x-testnet-statistics-api>

<https://github.com/deltaDAO/gaia-x-testnet-statistics>

<https://github.com/deltaDAO/gaia-x-snapshot>

<https://stats.minimal-gaia-x.eu/>



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## Hack Track 2: Service & Tool Support Track

02



# Hack Track 2 sessions

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- 01** Onboarding Session Track 2 ([presentation](#))
- 02** SD Toolkit
- 03** Guided Deployment of Trust Components (Verifier, Wallet, Issuer) ([presentation](#))
- 04** Utilize Hyperledger Aries for SD-Trust Issuance

# Self-Description Toolkit / SHACL Form Generator



- Introduction and Demonstration of the Self-Description creation and validation UI

The screenshot shows the "SHACL FORM GENERATOR" interface with four steps:

- Step 1: Select SHACL Shape (Icon: mouse cursor over a shape)
- Step 2: Form Generation (Icon: document with a checkmark)
- Step 3: Create New Instance (Icon: document with a plus sign)
- Step 4: Export (Icon: document with an arrow)

A "GET STARTED" button is located at the bottom left. Below the steps, there is a code editor window displaying the following JSON-LD context:

```
2   "@context": {
3     "@id": "http://w3id.org/gaia-x/validation#",
4     "gax-participant": "http://w3id.org/gaia-x/participant#",
5     "sh": "http://www.w3.org/ns/shacl#",
6     "xsd": "http://www.w3.org/2001/XMLSchema#",
7     "vcard": "http://www.w3.org/2006/vcard/ns#",
8     "gax-core": "http://w3id.org/gaia-x/core#"
9   },
10    "gax-participant:hasRegistrationNumber": {
11      "@value": "DEK101R.HRB170364",
12      "@type": "xsd:string"
13    },
14    "gax-participant:hasLegallyBindingName": {
15      "@value": "DeltaDAO AG",
16      "@type": "xsd:string"
17    },
18    "gax-participant:hasJurisdiction": {
19      "@value": "GER",
20      "@type": "xsd:string"
21    },
22    "gax-participant:hasCountry": {
23      "@value": "GER",
24      "@type": "xsd:string"
25    },
26    "gax-participant:leiCode": {
27      "@value": "39120FJBNU0YW987L26",
28      "@type": "xsd:string"
29    }
30 }
```

<https://gaia-x.fit.fraunhofer.de/>

### Complete InfrastructureServiceOffering Form

Prefix \_\_\_\_\_

depends on \* \_\_\_\_\_ +

has service title \* \_\_\_\_\_

description \* \_\_\_\_\_

is composed by \* \_\_\_\_\_ +

keyword \* \_\_\_\_\_

is defined by \* \_\_\_\_\_

has provision type \* \_\_\_\_\_

depends on \_\_\_\_\_ +

is composed by \_\_\_\_\_ +

Select export format  
 JSON-LD Format  Turtle Format

Save

Go Back to Selection of Files

# Gaia-X Lab Portal / Gaia-X Verifiable Credentials



## Gaia-X Lab 0.8.3

### Onboarding Portal

This web app demonstrates how SSI could be used to issue Gaia-X participation credentials in a way that is cryptographically secure, privacy-respecting, and machine-verifiable.

[REGISTER CREDENTIAL](#)

[VERIFY CREDENTIAL](#)

REGISTRATION    VERIFICATION    GITLAB

<https://onboarding-portal.lab.gaia-x.eu/>

An illustration of a white laptop on a dark blue background. On the laptop screen, there is a digital representation of a person's identity, showing a fingerprint and a small profile icon. A green ribbon or bar is draped over the screen. A small figure of a person is standing on the keyboard, holding a large key and pointing it towards a yellow padlock that is attached to the bottom right corner of the laptop. Dashed lines connect the icons on the screen to the physical objects on the laptop.

# Gaia-X Lab / Gaia-X Registry now available



[https://registry.gaia-x.eu/api-docs/#/Trust%20Anchor/post\\_api\\_trustAnchor](https://registry.gaia-x.eu/api-docs/#/Trust%20Anchor/post_api_trustAnchor)

### 3. List of defined trust anchors

Name	Defined as
State	<p>The Trust Service Providers (TSP) must be a state validated identity issuer.</p> <ul style="list-style-type: none"> <li>- For <code>participant</code>, if the <code>legalAddress.country</code> is in EEA, the TSP must be <b>eIDAS compliant</b>.</li> <li>- Until end of 2022 Q1, to ease the onboarding and adoption this framework DV SSL can also be used.</li> <li>- <b>Gaia-X</b> association is also a valid TSP for Gaia-X association members.</li> </ul>
eIDAS	<p>Issuers of Qualified Certificate for Electronic Signature as defined in eIDAS Regulation (EU) No 910/2014</p> <p>(homepage: <a href="https://esignature.ec.europa.eu/efds/1l-browser/#/screen/home">https://esignature.ec.europa.eu/efds/1l-browser/#/screen/home</a>)</p> <p>(machine: <a href="https://ec.europa.eu/tools/lotl/eu-lotl.xml">https://ec.europa.eu/tools/lotl/eu-lotl.xml</a>)</p>
DV SSL	<p>Domain Validated (DV) Secure Sockets Layer (SSL) certificate issuers are considered to be temporarily valid Trust Service Providers.</p> <p>(homepage: <a href="https://wiki.mozilla.org/CA/Included_Certificates">https://wiki.mozilla.org/CA/Included_Certificates</a>)</p> <p>(machine: <a href="https://ccadb-public.secure.force.com/mozilla/IncludedCACertificateReportPEMCSV">https://ccadb-public.secure.force.com/mozilla/IncludedCACertificateReportPEMCSV</a>)</p>
Gaia-X	<i>To be defined after 2022Q1.</i>
EDPB CoC	<p>List of Code of Conduct approved by the EDPB</p> <p>(homepage: <a href="https://edpb.europa.eu/our-work-tools/documents/our-documents_fr?f%5B0%5D=all_publication_type%3A61&amp;%5B1%5D=all_topics%3A125">https://edpb.europa.eu/our-work-tools/documents/our-documents_fr?f%5B0%5D=all_publication_type%3A61&amp;%5B1%5D=all_topics%3A125</a>)</p>
gleif	<p>List of registered LEI issuers.</p> <p>(homepage: <a href="https://www.gleif.org/en/about-lei/get-an-lei/find-lei-issuing-organizations">https://www.gleif.org/en/about-lei/get-an-lei/find-lei-issuing-organizations</a>)</p> <p>(machine: <a href="https://api.gleif.org/api/v1/registrationAuthorities">https://api.gleif.org/api/v1/registrationAuthorities</a>)</p>

# Guided Deployment of Trust & Compliance Services



The screenshot shows the Walt.id CLI Command Line Interface. On the left, there's a sidebar with sections like Wallet, Quick Start, Build (Docker Build, Local Build, Docker), Dependency (JVM), CLI | Command Line Interface, REST APIs, and Public deployments. The main content area has a header "Configuration". It contains several code snippets and explanatory text:

- A snippet for listing DIDs: `waltid-wallet-backend config --as-issuer did list`
- Text explaining the command lists available DIDs in the issuer backend.
- A snippet for getting help on the config command: `waltid-wallet-backend config --help`
- Text for more details about integrated commands, pointing to the SSI Kit documentation.

On the right, a modal window titled "Importing an external DID and key" provides instructions for importing a private key from a JWK file. It includes a code snippet: `waltid-wallet-backend config --as-issuer key import priv.jwk`.

**Walt.id Quick Start**  
<https://doc.walt.id/getting-started/quick-start>

**Walt.id SSI KIT Documentation**  
<https://docs.walt.id/ssikit/>

**Documentation Wallet** <https://doc.walt.id/v/web-wallet/getting-started/quick-start>

# Gaia-X Lab Repositories and Documentation



- **Repositories**
  - Demonstration Portal: <https://gitlab.com/gaia-x/lab/compliance/gx-issuer-portal>
  - Demonstration Verifiable Credential Issuer: <https://gitlab.com/gaia-x/lab/compliance/ssi-backends>
  - Demonstration Verifiable Credential Verifier: <https://gitlab.com/gaia-x/lab/compliance/ssi-backends>
  - Demonstration Cloud Wallet: <https://gitlab.com/gaia-x/lab/compliance/ssi-backends>
  - SSI backend: <https://github.com/walt-id/waltid-wallet-backend>
  - Demonstration Verifiable Credential Library: <https://github.com/walt-id/waltid-ssikit-vclib/tree/master/src/main/kotlin/id/walt/vclib/credentials/gaiax>
- **Documentation**
  - Gaia-X Trust Framework: <https://gaia-x.gitlab.io/policy-rules-committee/trust-framework/>
  - Walt.id SSI KIT Documentation: <https://docs.walt.id/ssikit/>

# Hyperledger Aries Cloud Agent for SD-Trust Issuance



- **What is done:**

<https://gitlab.com/gaia-x/gaia-x-community/gx-hackathon/gx-aries-kit>

- Introductory manuals for issuing and verifying VC with Hyperledger Aries
- User friendly CLI tool that is able to issue and verify VC using Hyperledger Aries as a backend

- **What needs to be done:**

- Minor CLI tool improvements
- Test CLI tool with real SD schemas



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06

## Hack Track 6: Deployment / Minimal Viable Gaia-X



THREEFOLD TECH

vmware®

ocean



IONOS

# Hack Track 6 sessions

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- 01** Onboarding Session Track 6 ([presentation](#))
- 02** Bootstrapping a Minimal Viable Gaia-X ecosystem ([presentation](#))
- 03** Bootstrapping a Structura-X ecosystem ([presentation](#))
- 04** Self-Description of MVG infrastructure and service offerings (Federators, Providers) ([presentation](#))
- 05** Rapid Cloud-Agnostic Deployment of Federation Services ([presentation](#))
- 06** Pilot-005 deployment and integration of the authorization provider

# Bootstrapping a decentralized Gaia-X ecosystem



## Federation of interoperable autonomous Gaia-X ecosystems

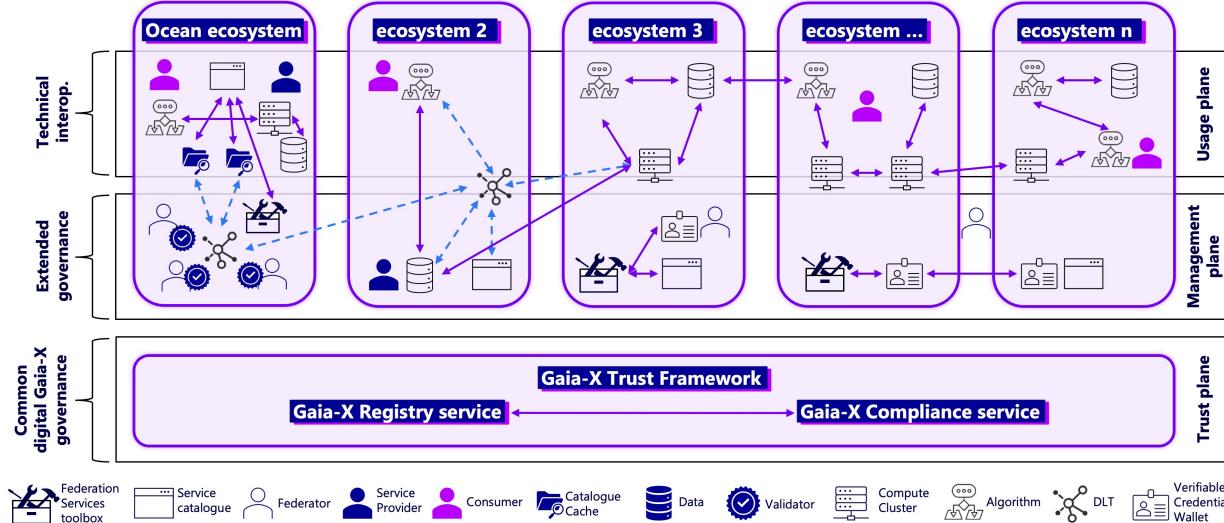
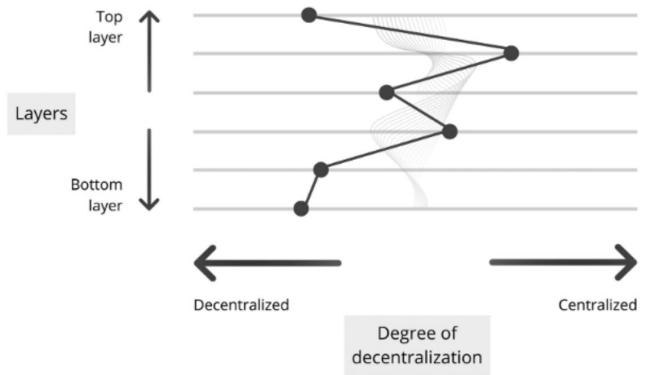


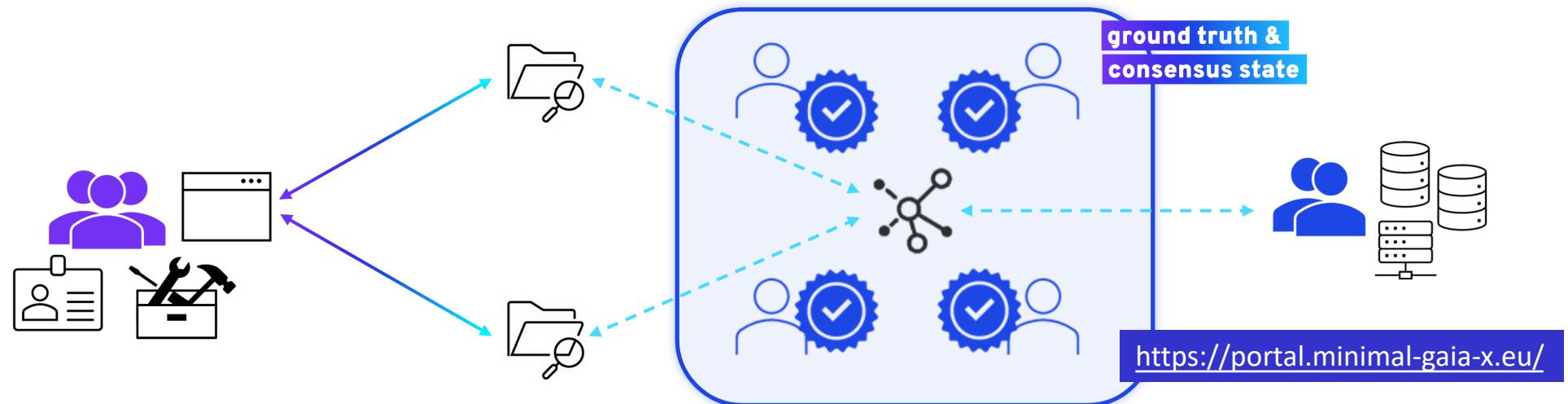
Image is licensed under a CC BY 4.0 license, Gaia-X European Association for Data and Cloud AISBL. Remixed by deltaDAO AG for illustration purposes.



© Thibault Schrepel, Blockchain + Antitrust

<https://portal.minimal-gaia-x.eu/>

# Bootstrapping a decentralized Gaia-X Ecosystem



federation services toolbox   service catalogue   federator   service provider   consumer   catalogue cache   service offering   validator   compute cluster   DLT   verifiable credential wallet

# Bootstrapping a Structura-X Ecosystem (Threefold)



## SCALABLE AND INTEROPERABLE BY DESIGN

### SMART CONTRACT FOR IT



#### USERS

have a “digital twin” online with built in knowledge to deal with your digital currencies & managing personal information and data.



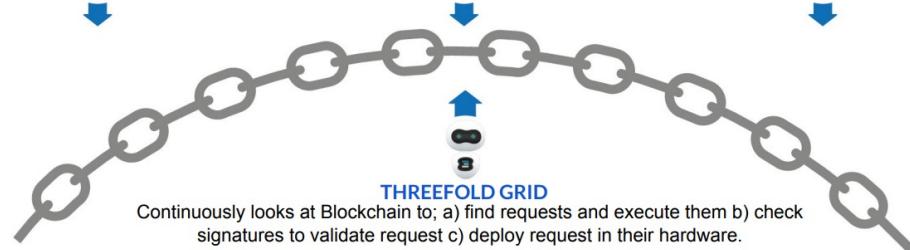
#### GROUPS & ORGANIZATIONS

Multi-Signatures can be used by groups or organizations for consensus before a workload can be deployed.



#### IT EXPERTS & DEVELOPERS

Creates “Knowledge” (Code-Recipes) to deploy & operate IT workloads (containers, K8S clusters, backup, ...)



Continuously looks at Blockchain to; a) find requests and execute them b) check signatures to validate request c) deploy request in their hardware.

#### BLOCKCHAIN INFRA

Allows all types of workload deployments to be digitally registered.

Smart Contract  
for IT  
Protected by  
Smart Contract  
for IT

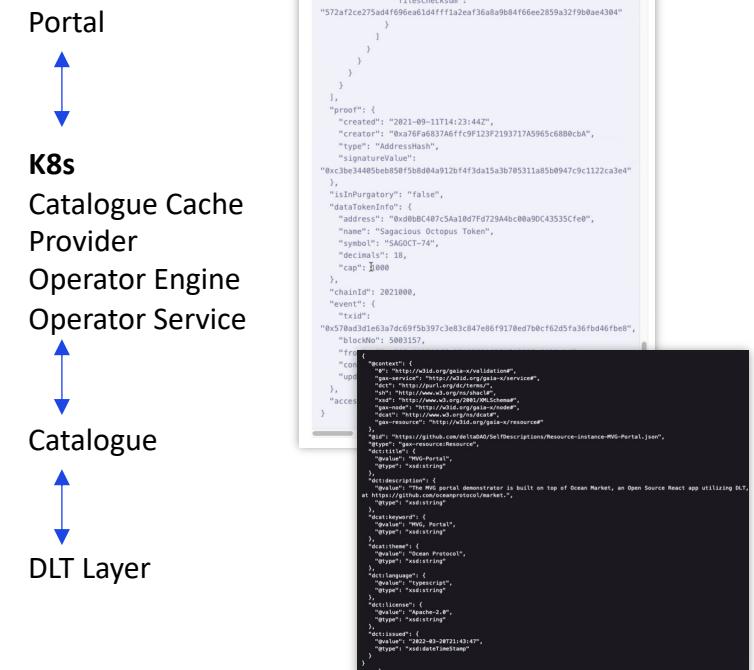
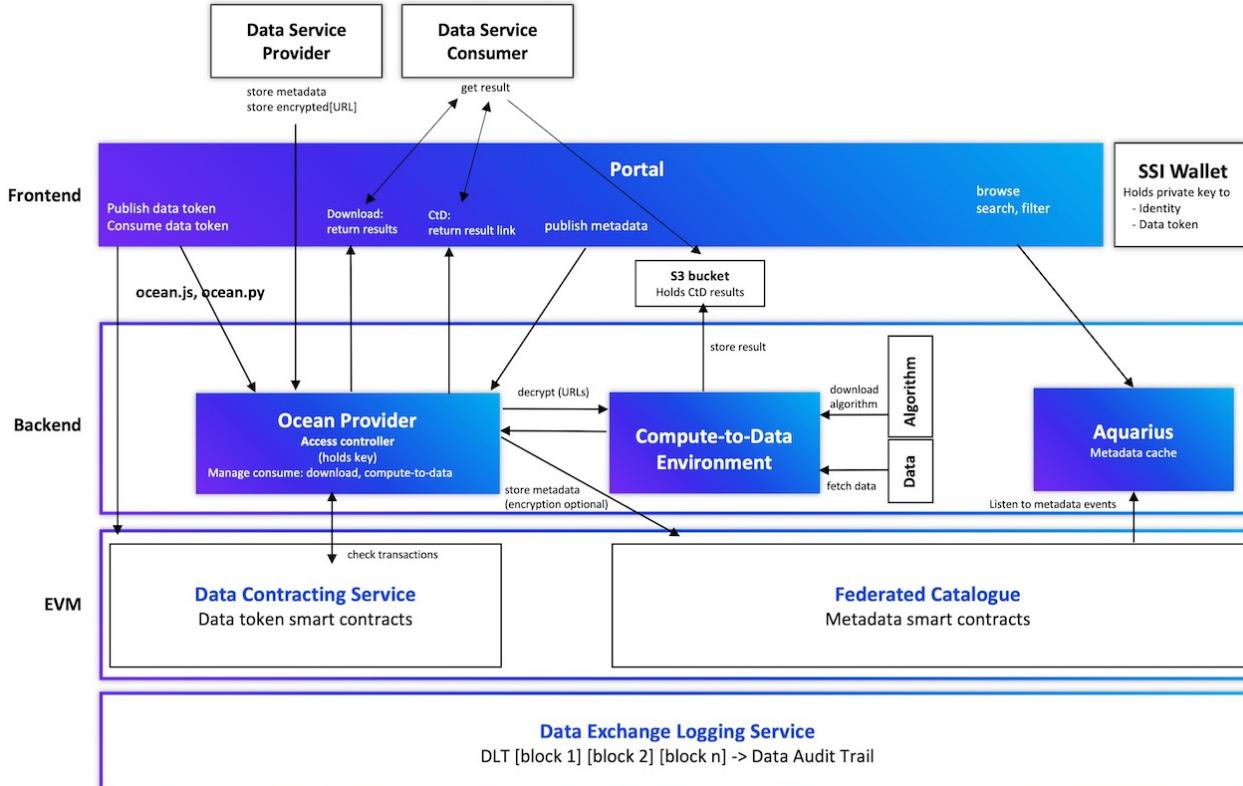
# Self-Descriptions for MVG infrastructure & services



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

<https://github.com/deltaDAO/SelfDescriptions>



# Service Portability w. VMware Tanzu & Ocean Protocol



- deploy a Federation Service on any cloud with VMware Tanzu
- interoperable, reversible & portable
- cloud agnostic / rapid deployment

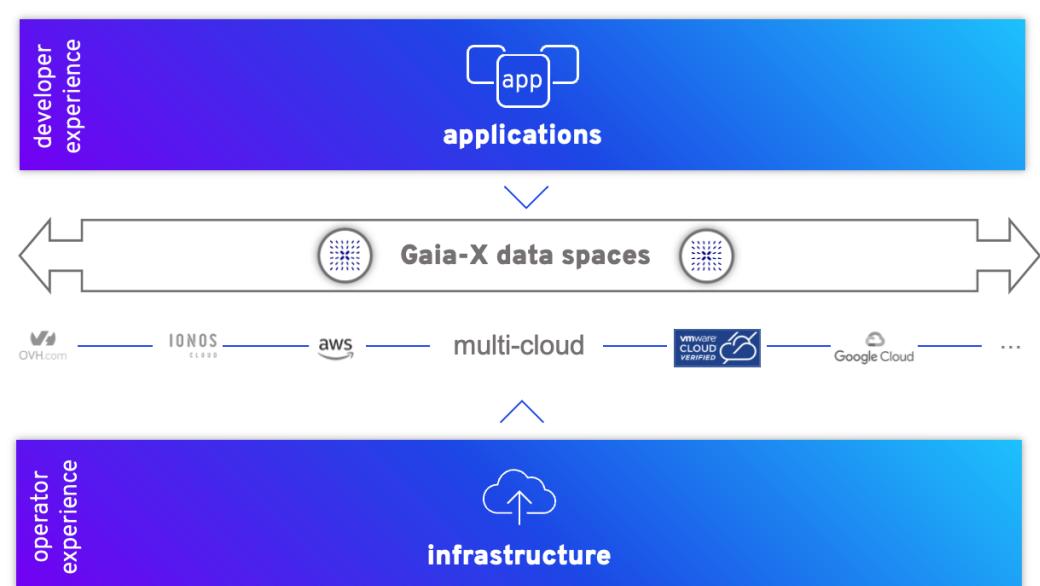
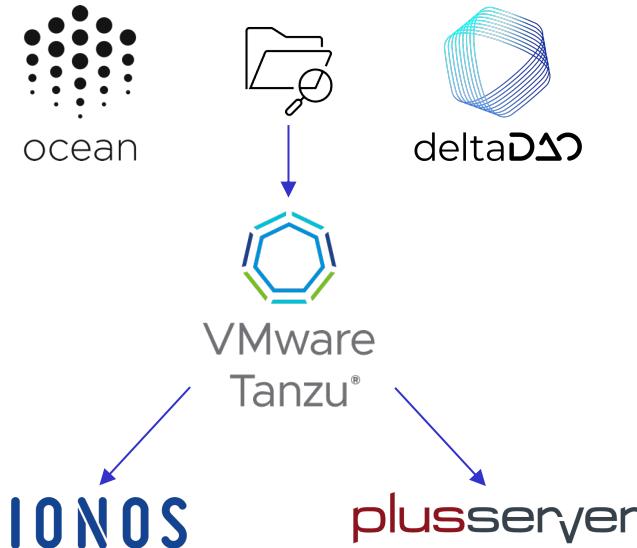


Image is licensed under a CC BY 4.0 license, VMware.  
Remixed by deltaDAO AG for illustration purposes.

<https://github.com/vmware-tanzu>

Tanzu Package Manager Link: <https://mvg-catalog-repo.delta-dao.com/packages/mvg-catalog-repo>

# Service Portability w. VMware Tanzu & Ocean Protocol



[https://github.com/deltaDAO/files/raw/main/MVG\\_Tanzu\\_DeploymentGuide.pdf](https://github.com/deltaDAO/files/raw/main/MVG_Tanzu_DeploymentGuide.pdf)



install VMware Tanzu



install a MVG Federation package on any cloud: Federated Catalog Cache



connect the Federated Catalog Cache to the decentralized core grid



crawl, cache and serve data service offering from the Federated Catalog



display data service offering on any MVG Portal

# Pilot-005, Data to Compute



GOAL: Integrate GAIA-X Catalogue to the MVG Pilot-005 architecture

The screenshot shows a web browser window titled "GAIA-X Catalogue Prototyping". The page header includes a "Not secure" warning and the URL "159.69.185.218:5000". Below the header, there's a section titled "GAIA-X Catalogue Prototyping" with the sub-section "Playground for GAIA-X Catalogue features.". Underneath, there's a "SPARQL Query" section with the sub-section "Submit a SPARQL query below." A large text area contains a SPARQL query:

```
SELECT ?p ?v  
WHERE {<did:key:z6MkgMgbmFgqNfVEEoLoyMunUdgTsnaXuBfNC390gbHg2oNs> ?p ?v .}
```

At the bottom of the query area is a "Submit Query" button.

Gaia-X Catalogue

Done:

- G-X Catalogue deployed in cloud
- G-X Catalogue registry bootstrapped with SDs

Could be improved:

- Ability to get whole SD without SPARQL



Trust Component

Done:

- Trust Component integrated with G-X Catalogue

Could be improved:

- Lot of “FIXME” comments because of SPARQL responses that are parsed and mapped to the SD template



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THANK YOU