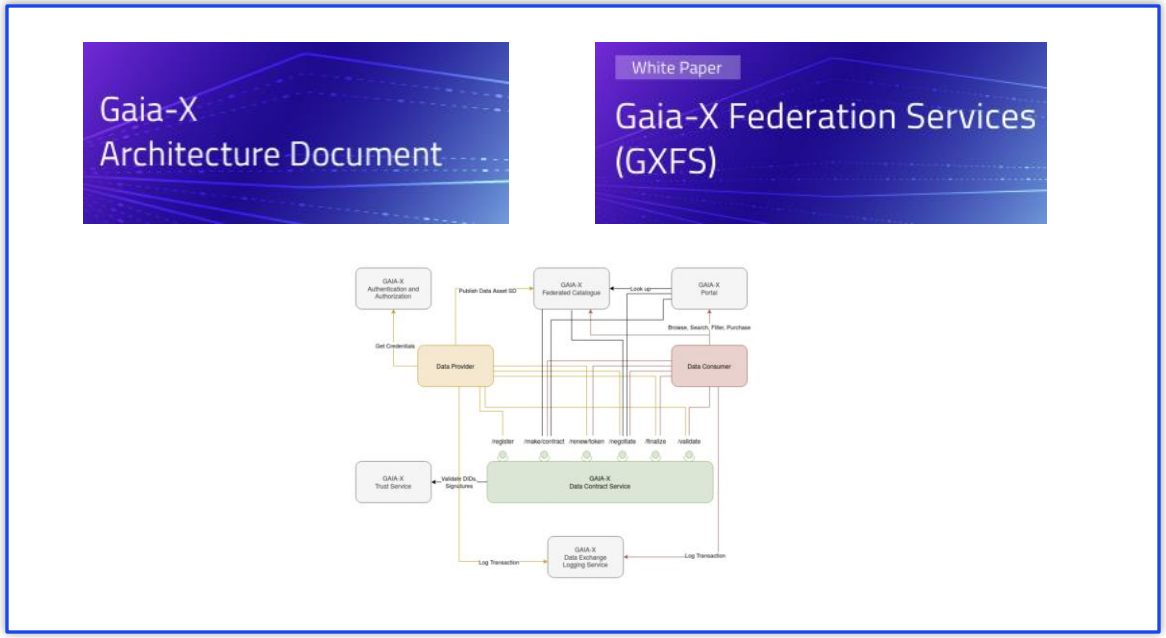
presentation

Minimal Viable Gaia-X

ocean | deltaDAO

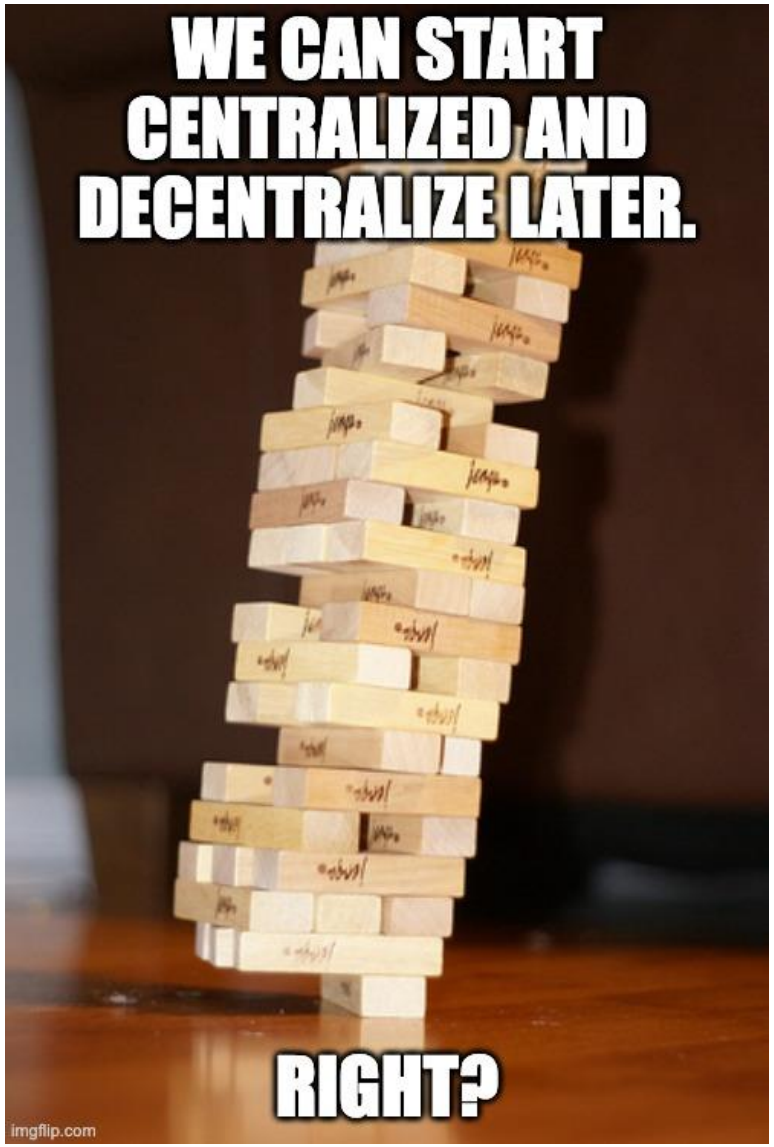
our starting point

expectation vs. reality



exceptional & necessary

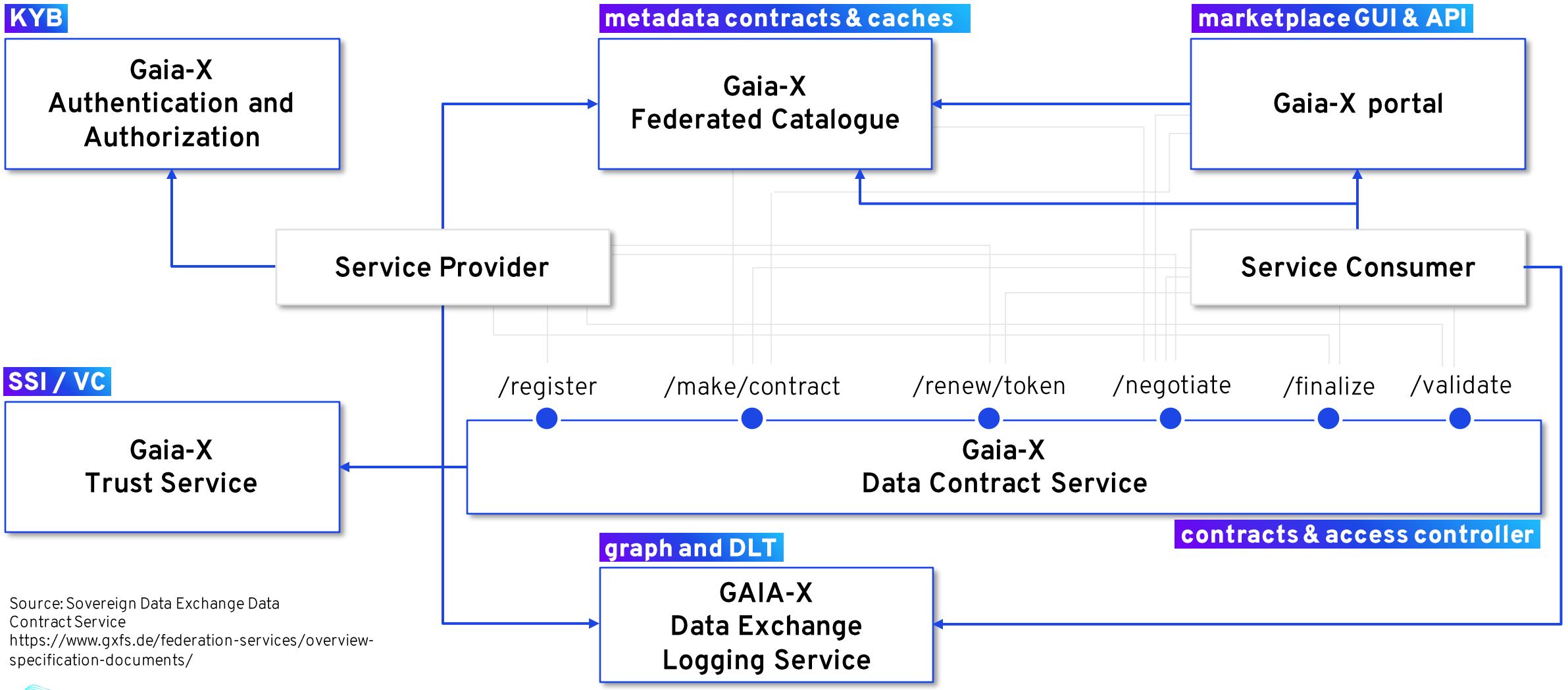
why decentralized?



it is very hard to decentralize later.

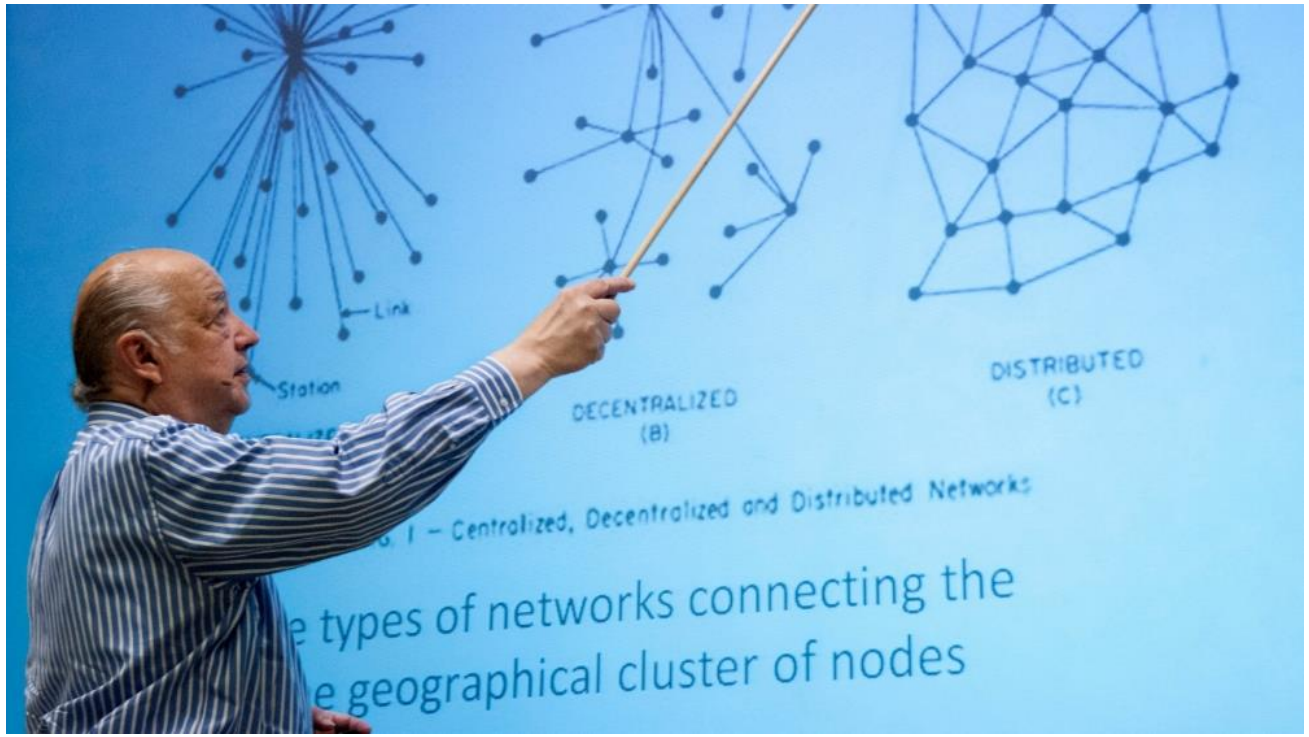
Gaia-X federation services & the Minimal Viable Gaia-X

ocean deltaDAO



Source: Sovereign Data Exchange Data Contract Service
https://www.gxfs.de/federation-services/overview-specification-documents/

distribution leads to resilience and reduces dependencies



Paul Baran presents his work at a RAND Alumni Association event on July 25, 2009
Photo by Diane Baldwin/RAND Corporation

Paul Baran's seminal 1964 article "On Distributed Communications Networks"

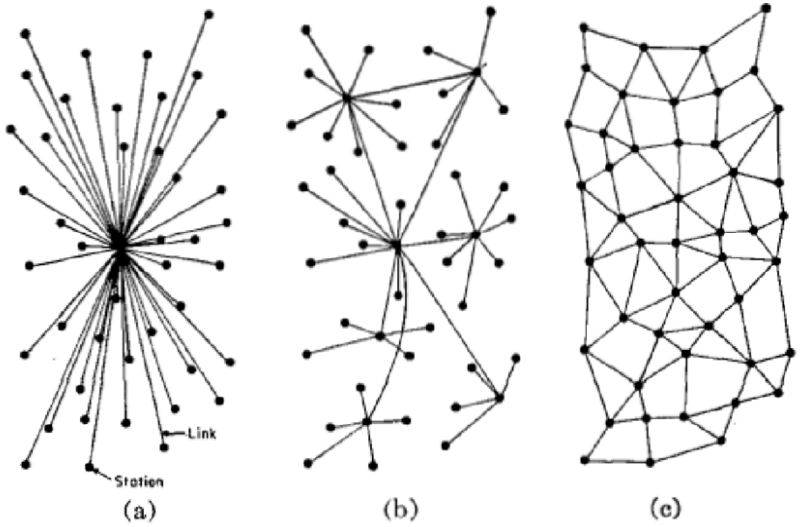


Fig. 1—(a) Centralized. (b) Decentralized. (c) Distributed networks.

centralization can be an expensive liability.

remove all single points of failure from the federation

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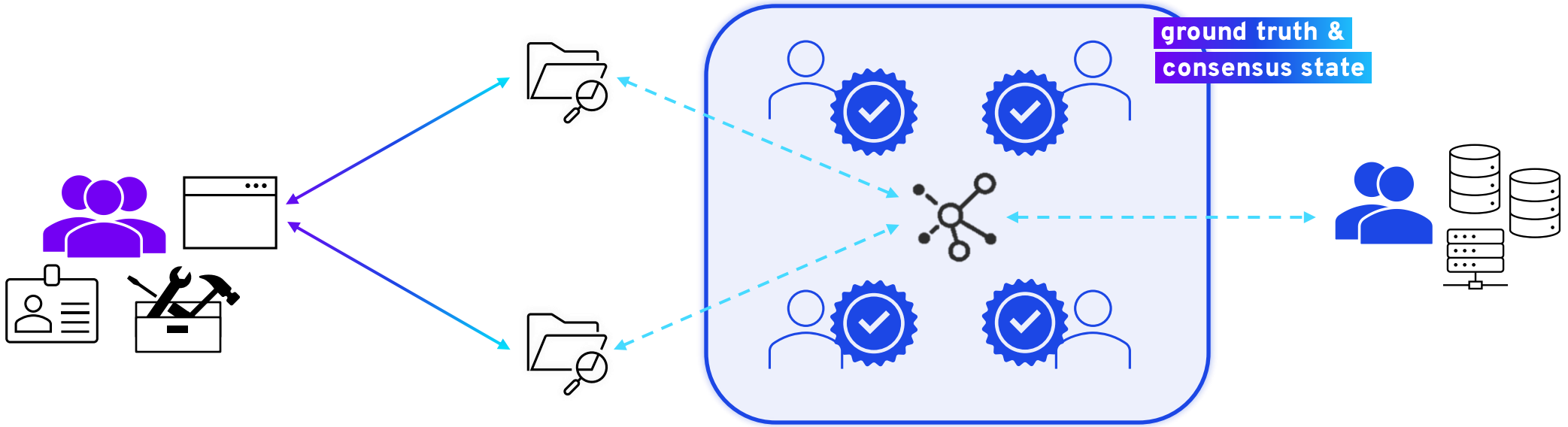
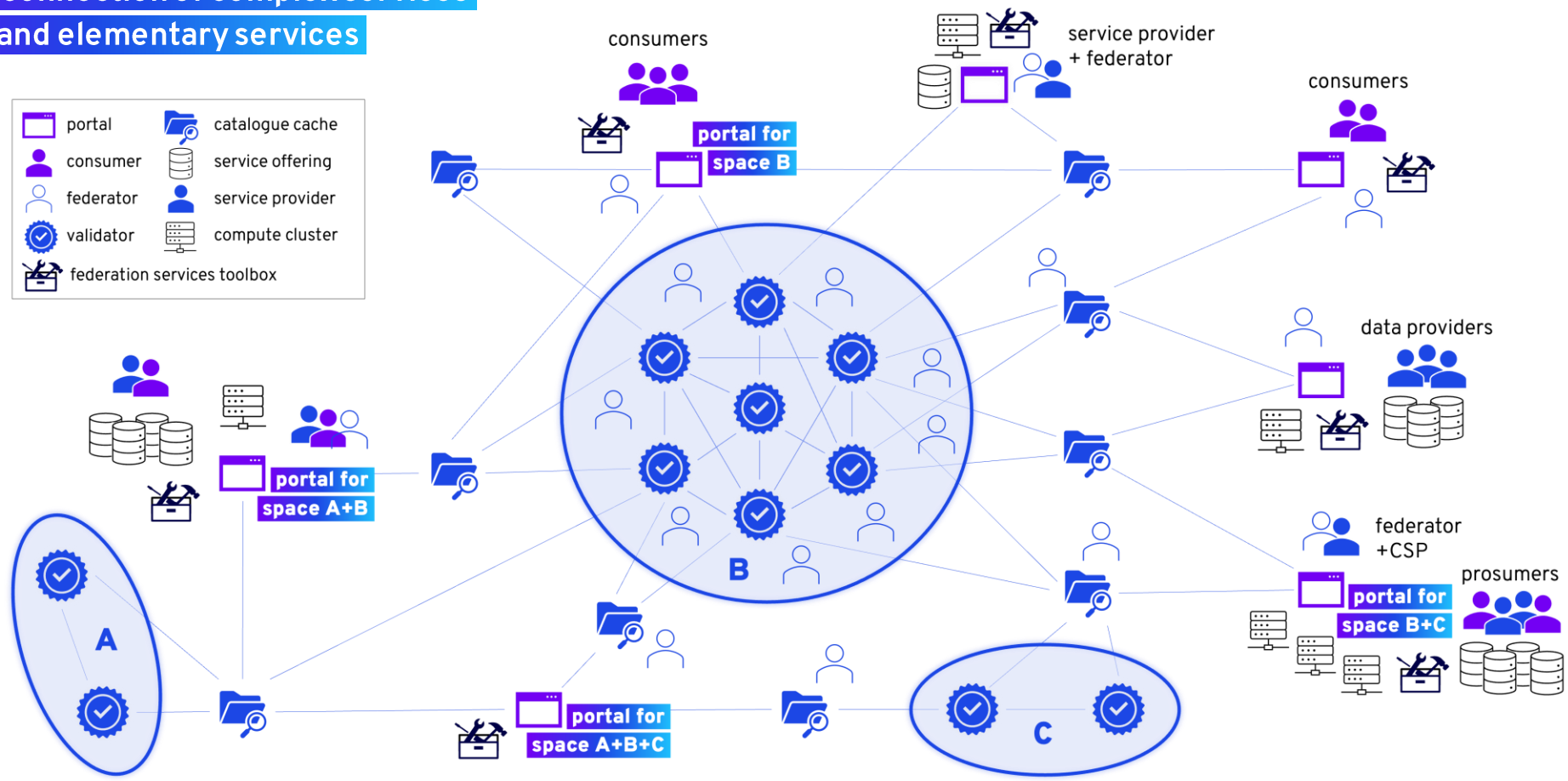


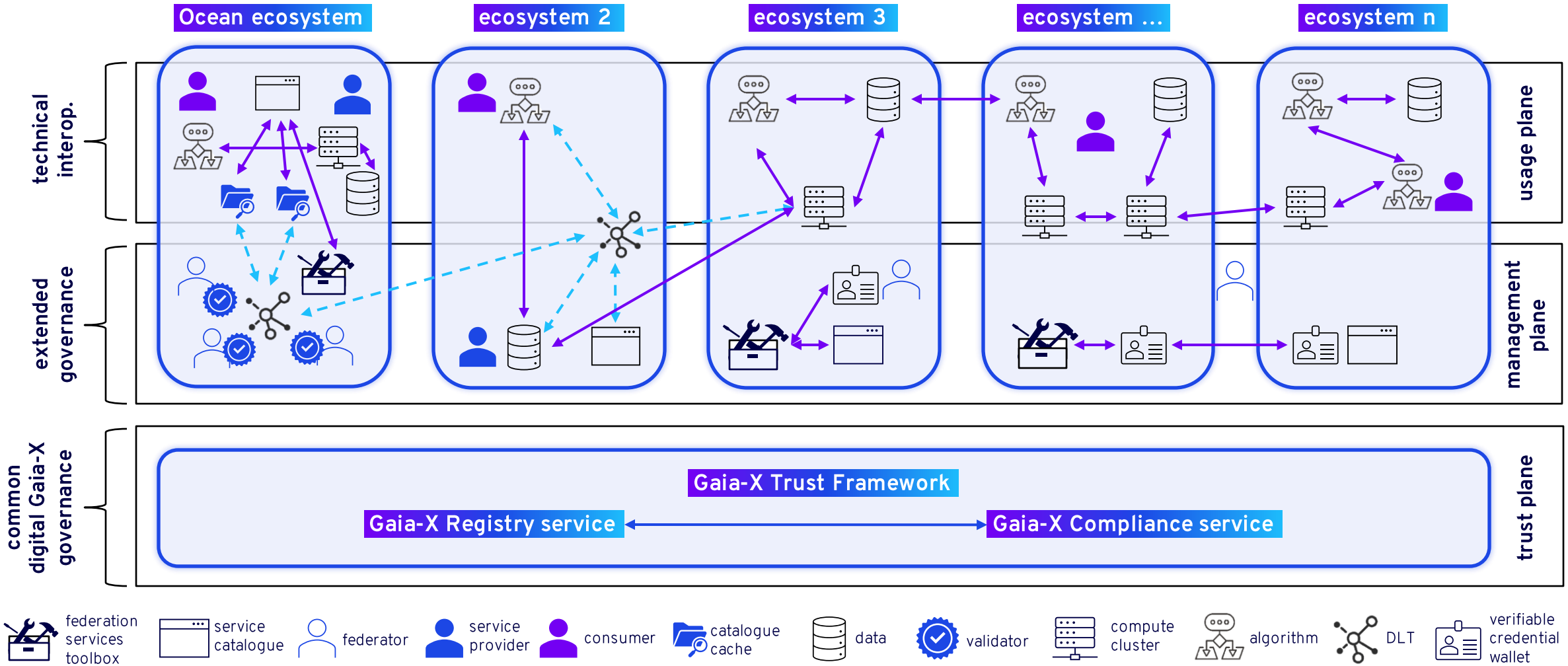
federation services toolbox
service catalogue
federator
service provider
consumer
catalogue cache
service offering
validator
compute cluster
DLT
verifiable credential wallet

composability

creation and connection of complex services
from atomic and elementary services



there will be many ecosystems. how to start a decentralized one?



vision Gaia-X & European data economy / data act

ocean deltaDAO

fairness & competitiveness	GDPR-compliance & data security	increase access, lower barriers & transaction costs
minimize lock-in & open-source software	incentives to share & incentives to collaborate	enable investments, foster innovation, & fair returns
auditability, provenance & transparency	open private data & increase B2B use	reduce fragmentation & EU-wide regulatory framework

guiding principles

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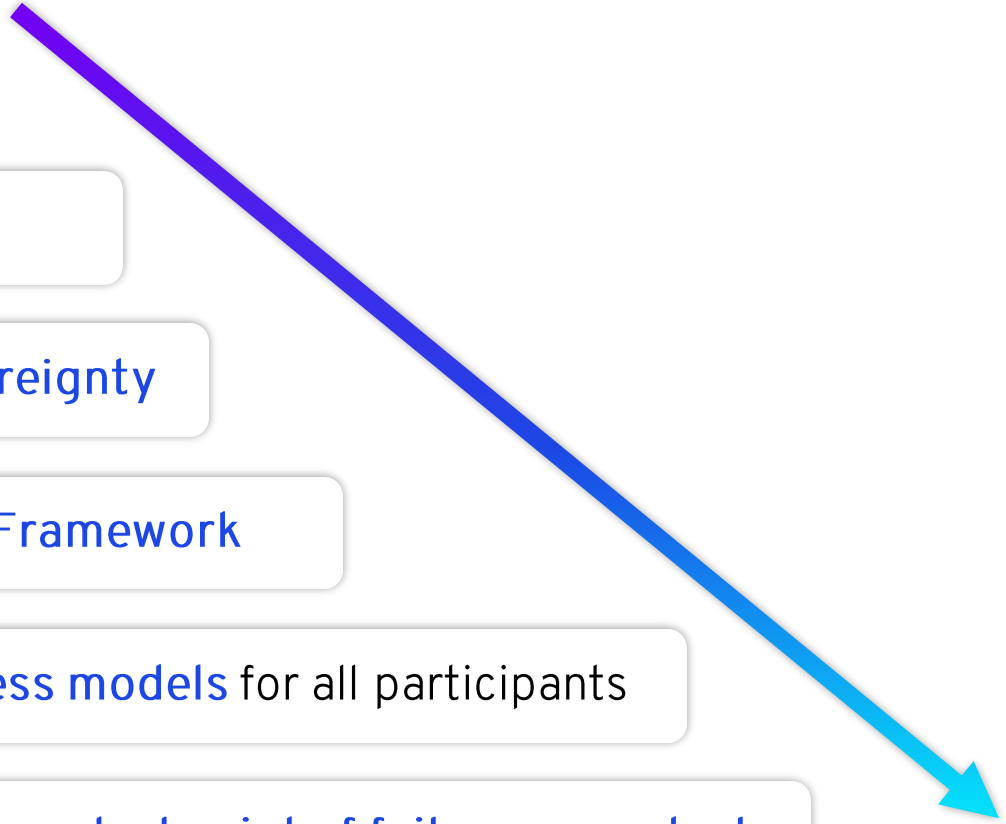
- reuse existing software as much as possible
- be transparent, use free open-source
- enable technical data sovereignty
- enable Gaia-X Trust Framework
- sustainable business models for all participants
- no lock-in, no central point of failure or control



made with love and 100% free open-source technology

ocean

compute-to-data enables true technical data sovereignty

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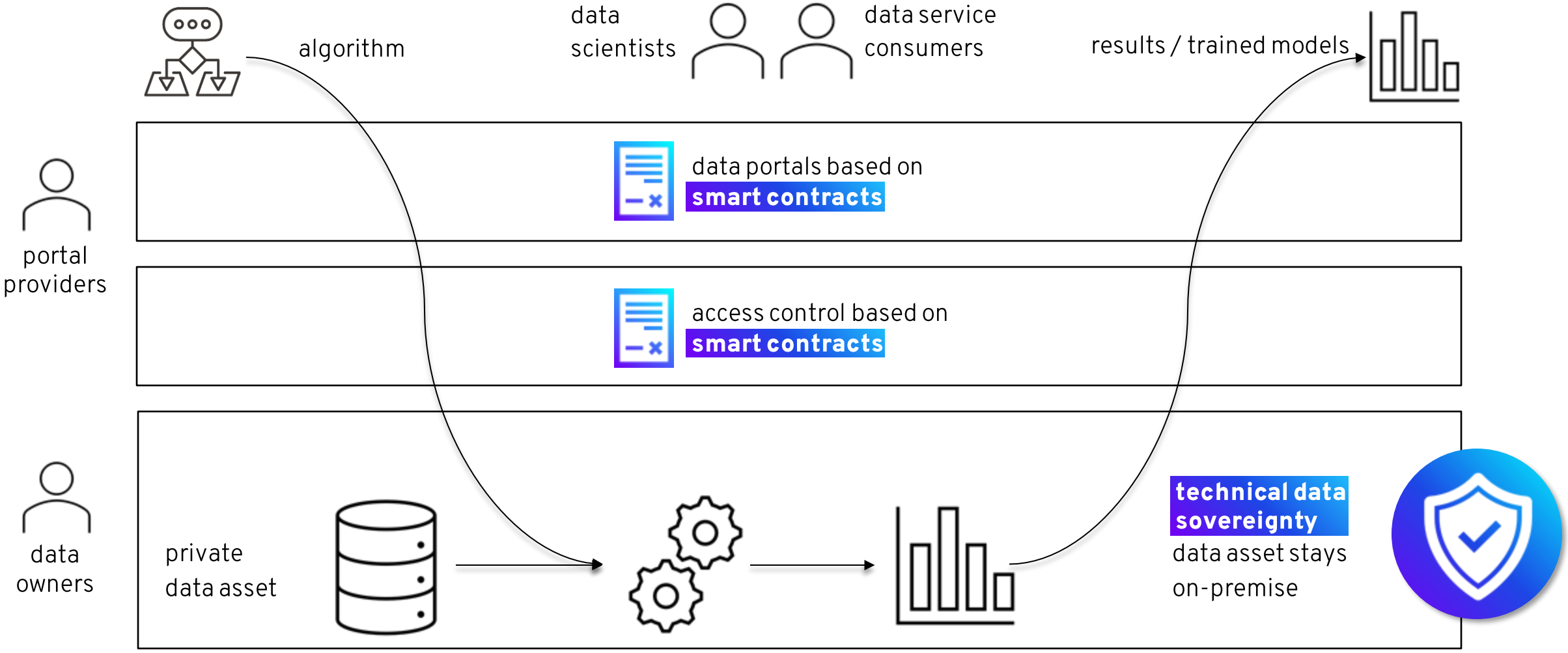

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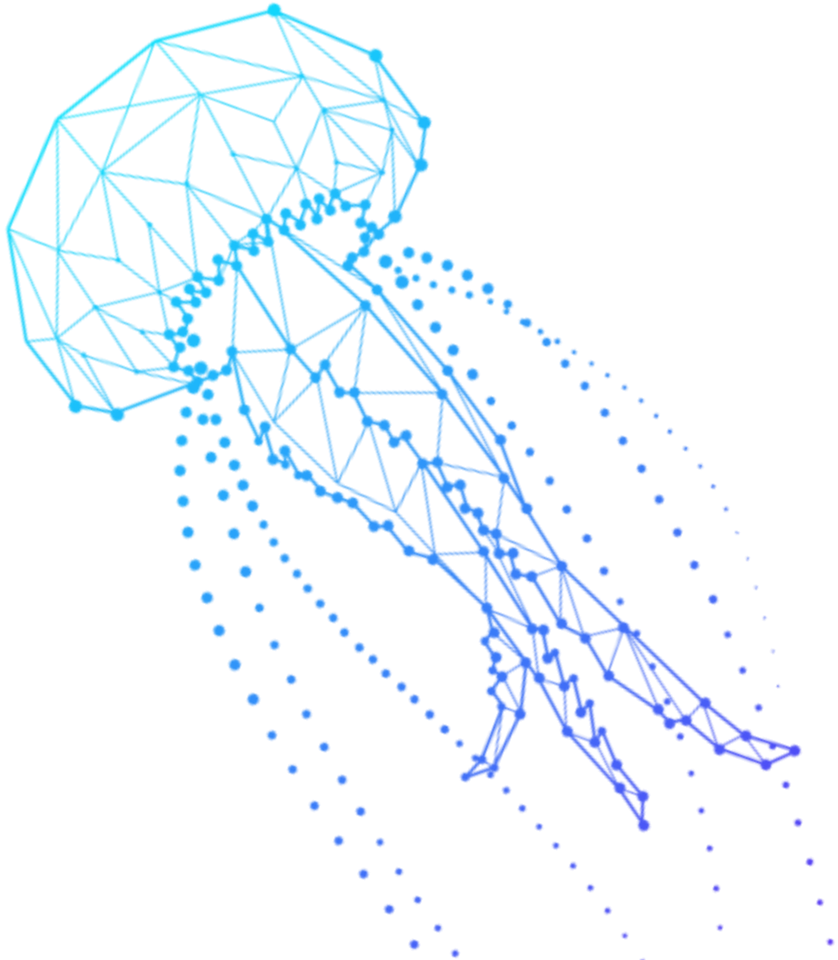
portal.minimal-gaia-x.eu

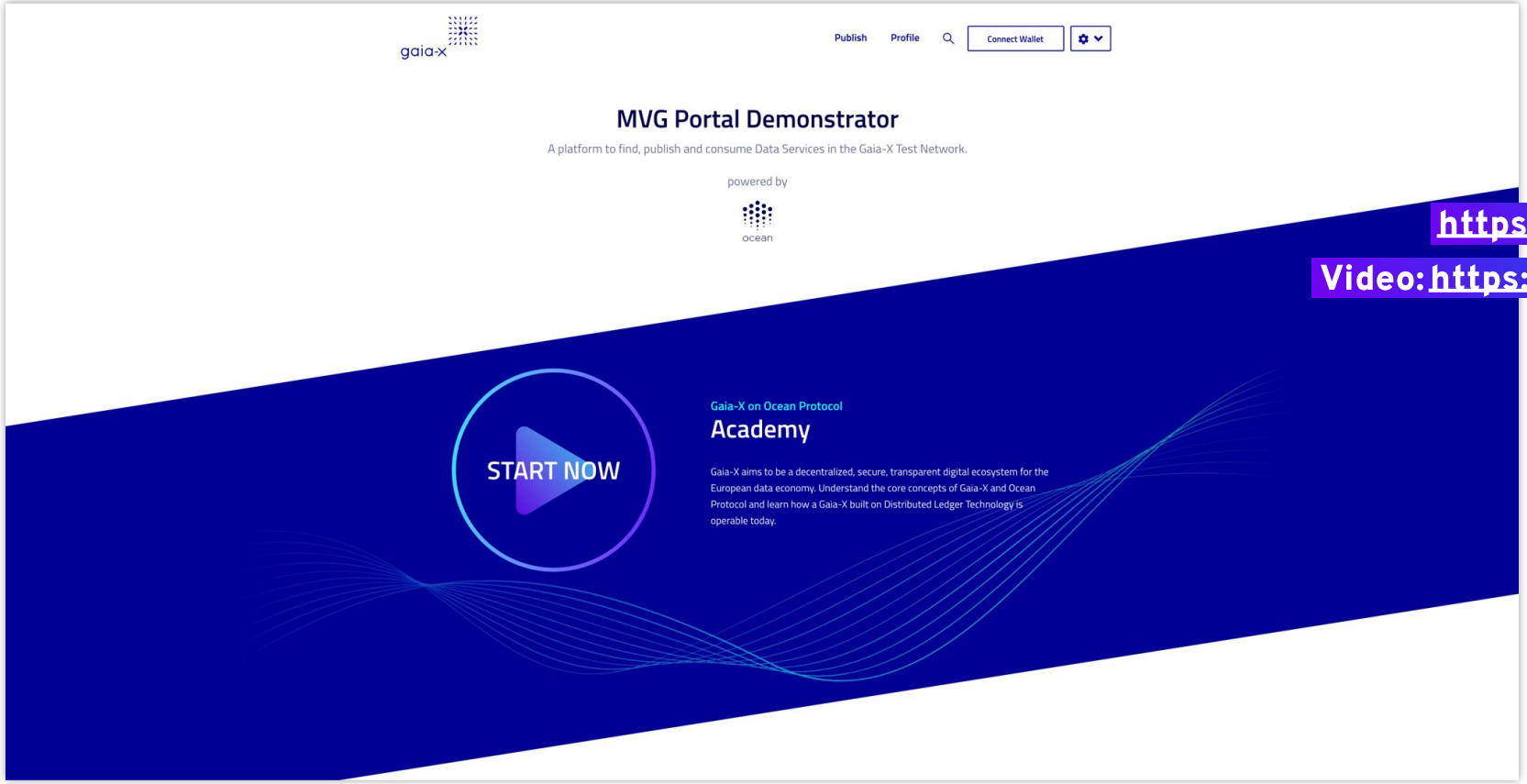
Minimal Viable Gaia-X portal



powered by
Ocean Protocol

deltaDAO | data economy solutions – GDPR compliant | contact@delta-dao.com

Hackathon #1 - First Minimal Viable Gaia-X Demonstrator



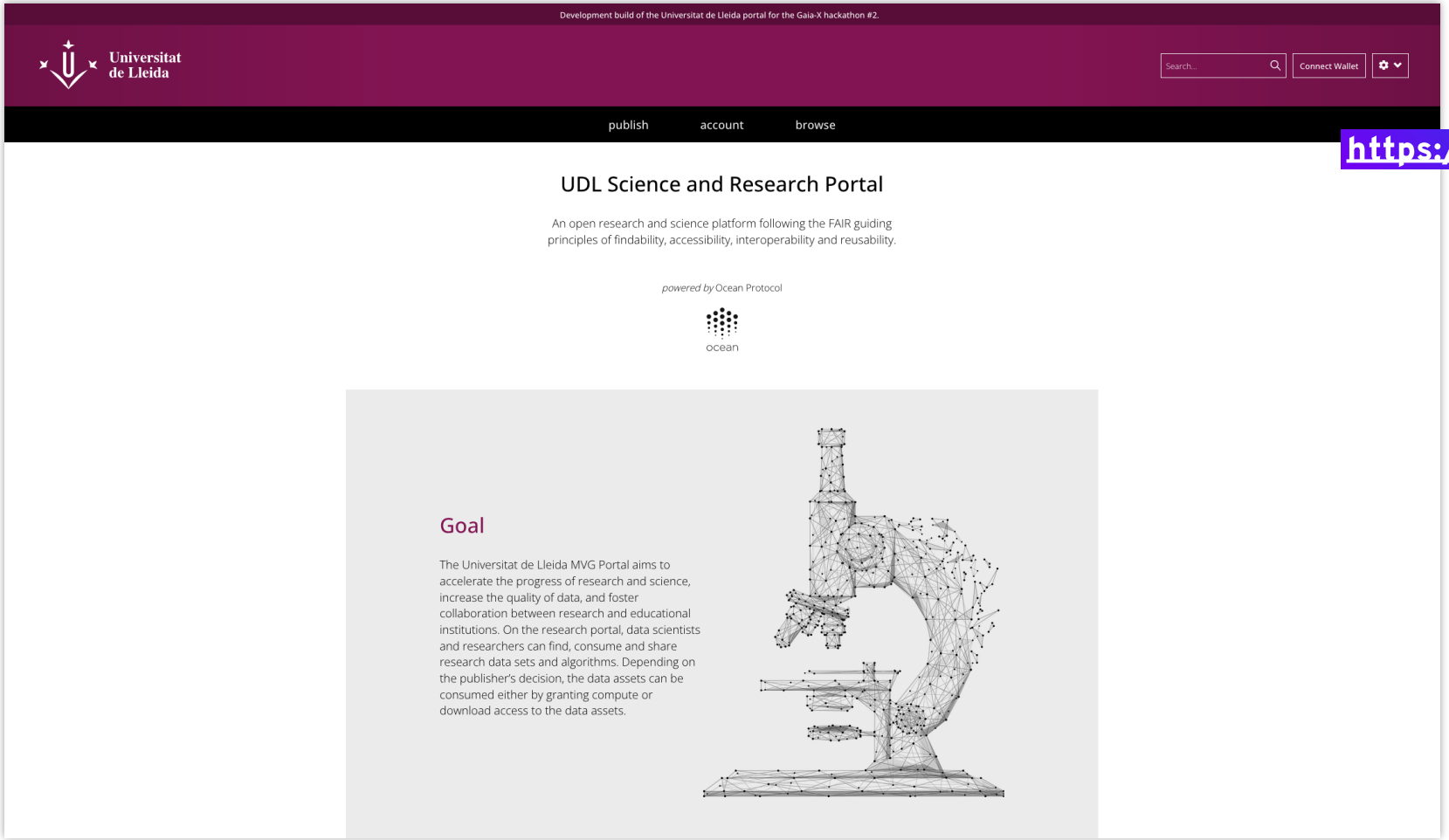
https://portal.minimal-gaia-x.eu

Video: https://youtu.be/R49CXPTRamg

Medium Minimal Viable Gaia-X blogpost

MVG portal

for F.A.I.R. science and to connect researchers & businesses

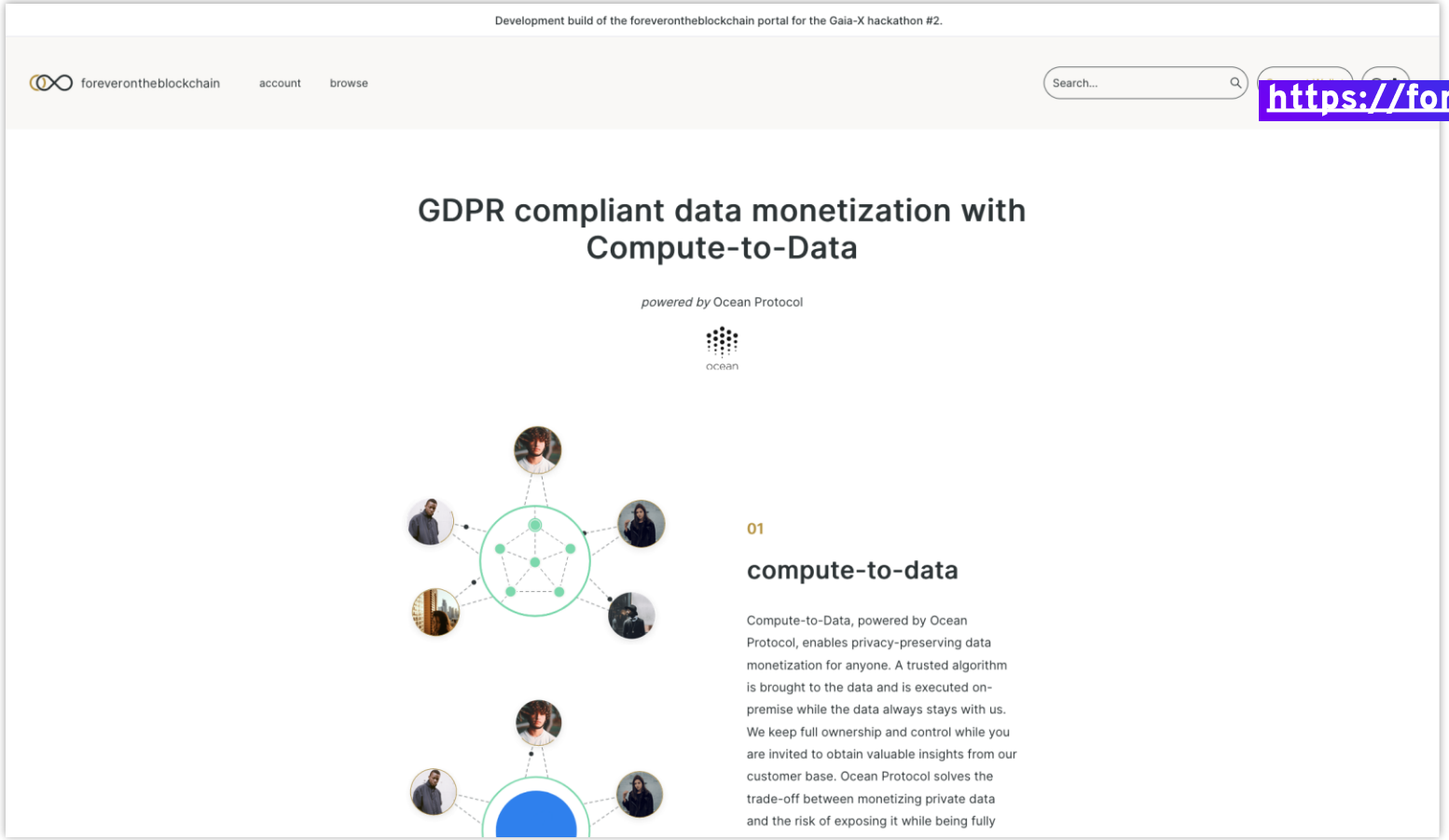


https://udl.portal.minimal-gaia-x.eu

Medium UDL blogpost

MVG portal

for SMEs and GDPR-compliant data usage



https://forever.portal.minimal-gaia-x.eu

Medium foreverontheblockchain Blogpost

MVG portal

for regulators and the finance industry

https://safefbdc.portal.minimal-gaia-x.eu

Medium safeFBDC Blogpost

MVG portal

for enterprise marketplaces and cloud service providers

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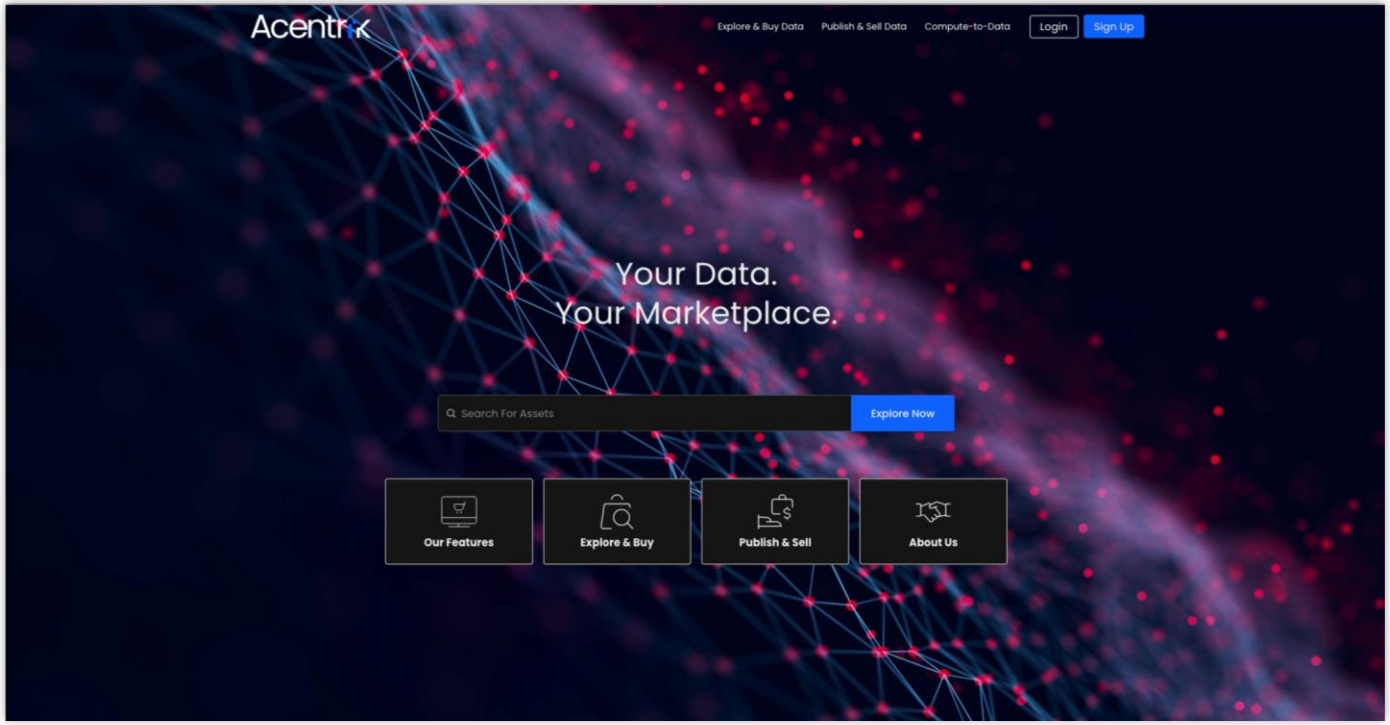

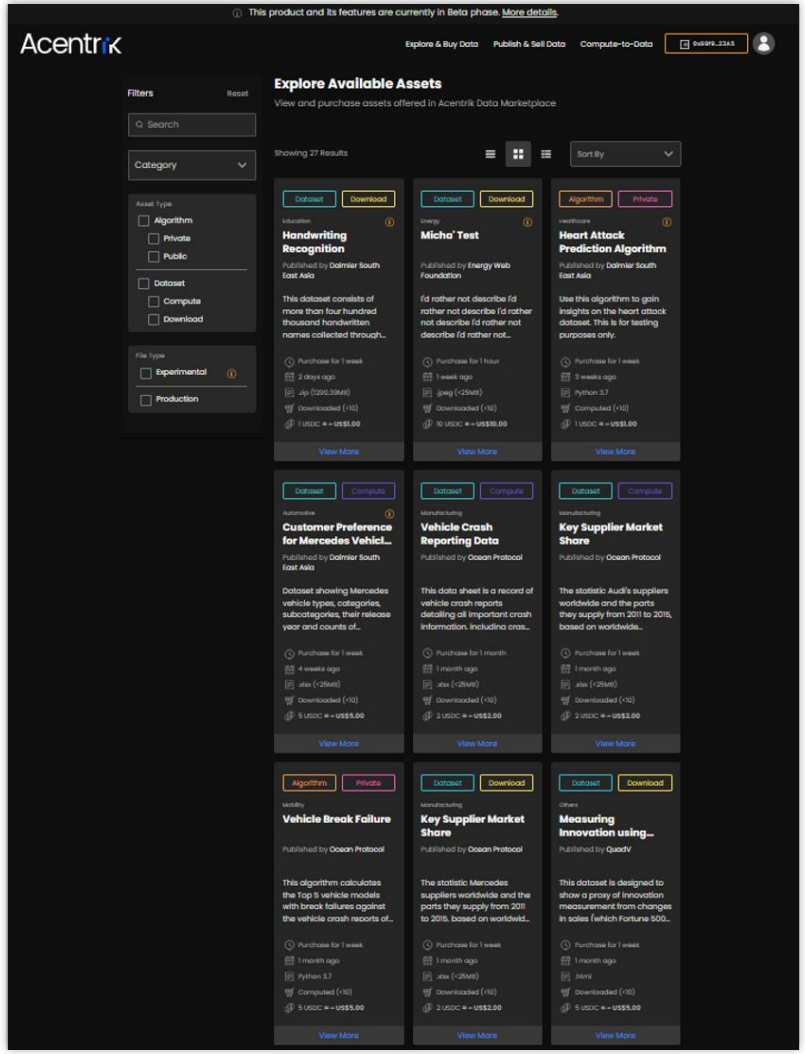

https://sandbox.acentrik.io/

Medium Acentrik blogpost

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Gaia-X Lab 0.8.3

REGISTRATION VERIFICATION GITLAB

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

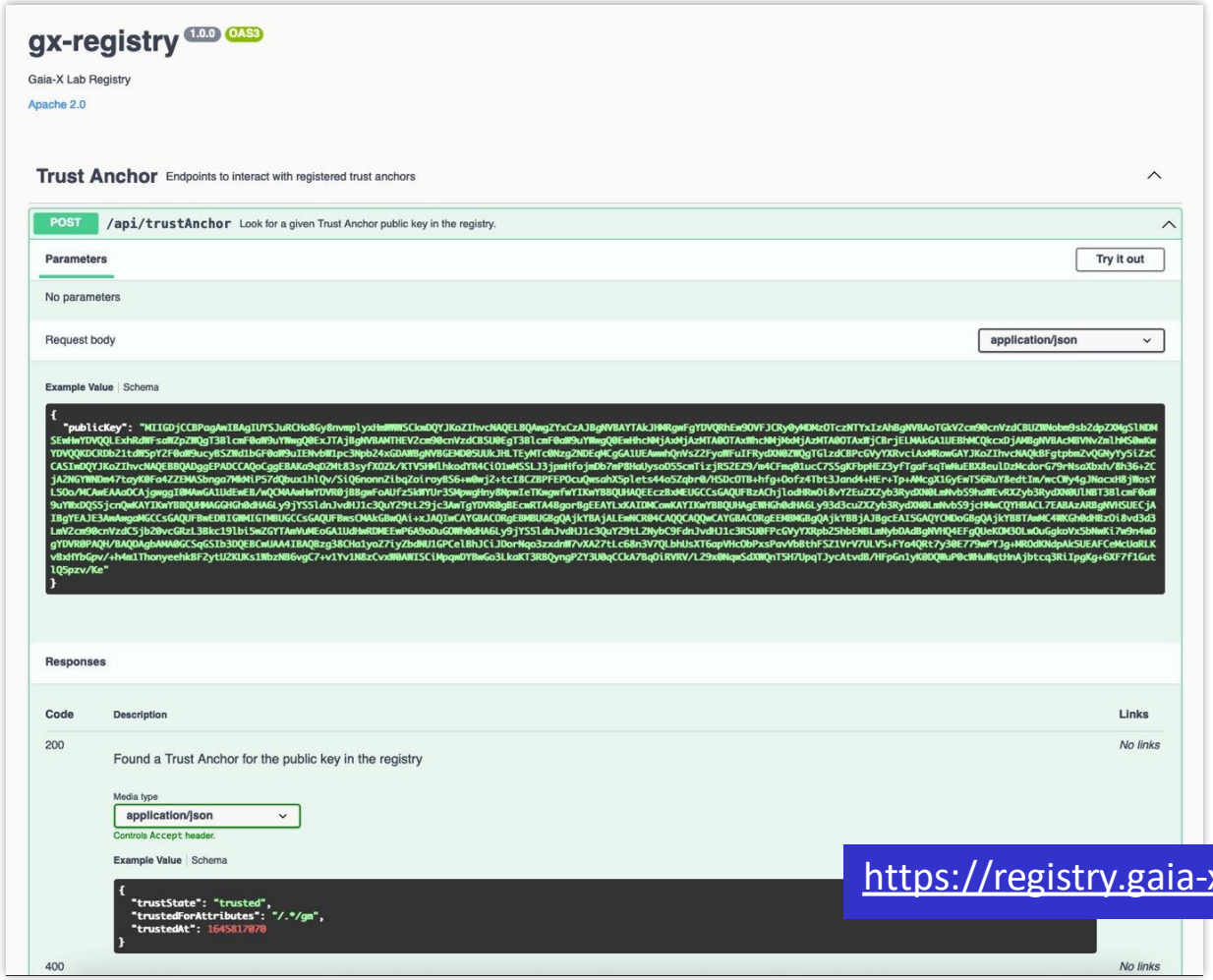
Onboarding Portal

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

MVG portal

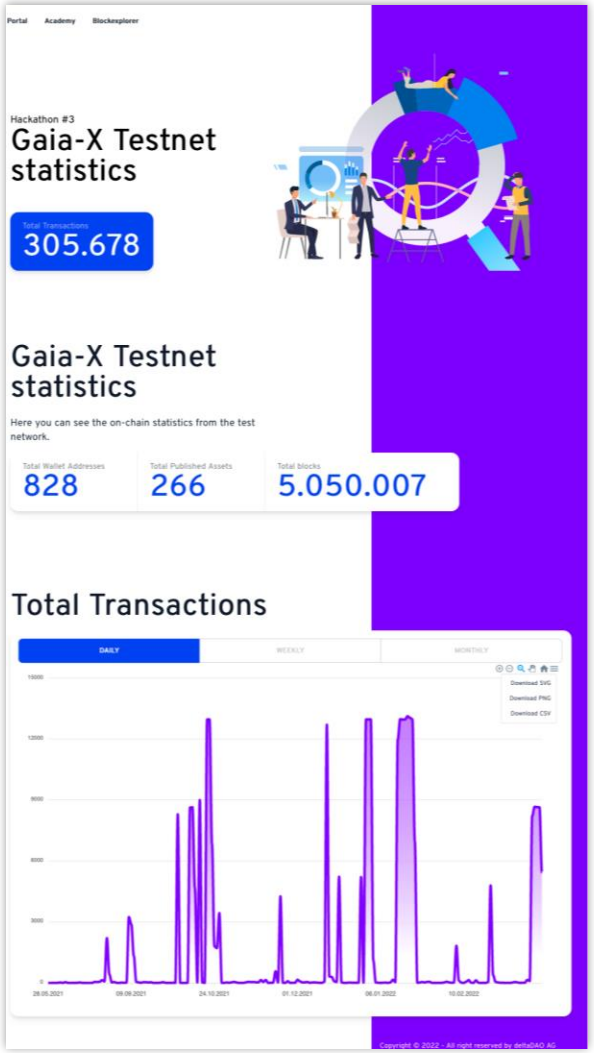


3. List of defined trust anchors

Name	Defined as
State	The Trust Service Providers (TSP) must be a state validated identity issuer. - For `participant`, if the `legalAddress.country` is in EEA, the TSP must be **eiDAS** compliant. - Until end of 2022 Q1, to ease the onboarding and adoption this framework **DV SSL** can also be used. - **Gaia-X** association is also a valid TSP for Gaia-X association members.
eiDAS	Issuers of Qualified Certificate for Electronic Signature as defined in eIDAS Regulation (EU) No 910/2014 (homepage: https://esignature.ec.europa.eu/efda/tl-browser/#/screen/home) (machine: https://ec.europa.eu/tools/lotl/eu-lotl.xml)
DV SSL	Domain Validated (DV) Secure Sockets Layer (SSL) certificate issuers are considered to be temporarily valid Trust Service Providers. (homepage: https://wiki.mozilla.org/CA/Included_Certificates) (machine: https://ccadb-public.secure.force.com/mozilla/IncludedCACertificateReportPEMCSV)
Gaia-X	*To be defined after 2022Q1.*
EDPB CoC	List of Code of Conduct approved by the EDBP (homepage: https://edpb.europa.eu/our-work-tools/documents/our-documents_fr?f%5B0%5D=all_publication_type%3A61&f%5B1%5D=all_topics%3A125)
gleif	List of registered LEI issuers. (homepage: https://www.gleif.org/en/about-lei/get-an-lei-find-lei-issuing-organizations) (machine: https://api.gleif.org/api/v1/registration-authorities)

https://registry.gaia-x.eu/api-docs/#/Trust%20Anchor/post_api_trustAnchor

MVG portal



May 2021 – March 2022

Total Transactions
314.087

Hackathon 3
> 4600 Transactions
> 100 Gaia-X Participant Credentials

Total Wallet Addresses	Total Published Assets	Total blocks
828	266	5.050.007

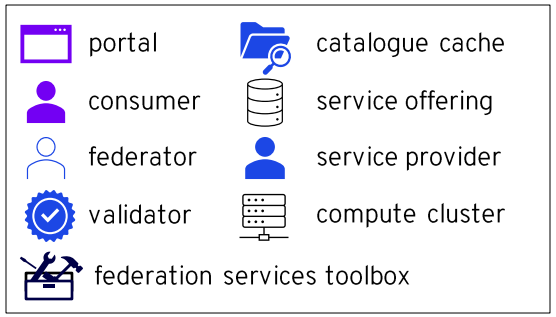
https://stats.minimal-gaia-x.eu/

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

introduction of a Minimal Viable Gaia-X

creation and connection of complex services from atomic and elementary services



remove all single points of failure from the federation

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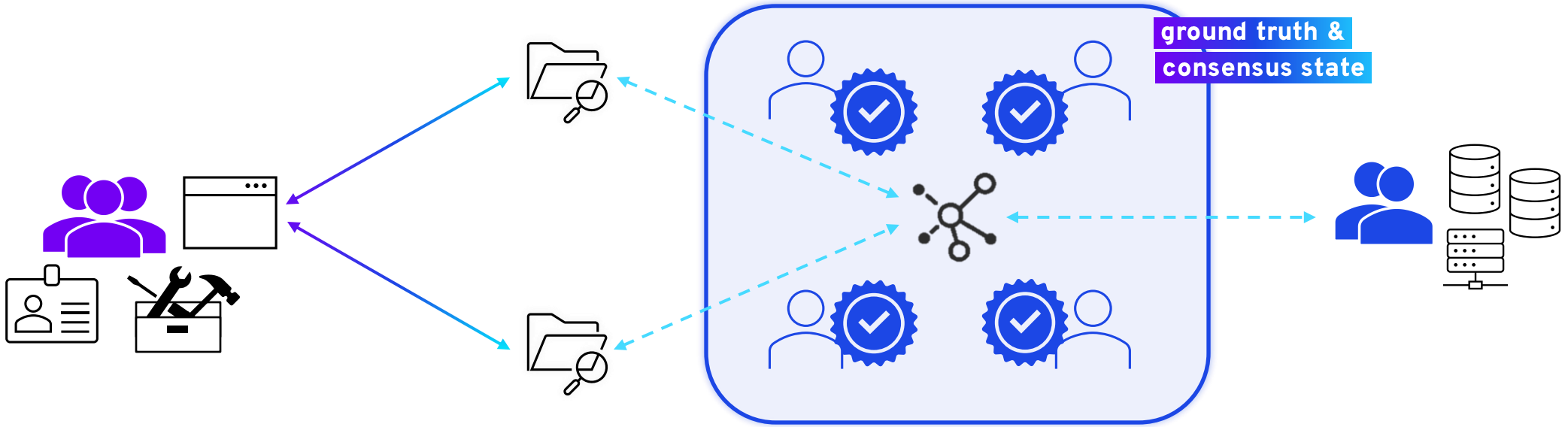

federation services toolbox
service catalogue
federator
service provider
consumer
catalogue cache
service offering
validator
compute cluster
DLT
verifiable credential wallet

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portal.minimal-gaia-x.eu

MVP Gaia-X federation services & decentralized core grid

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u users

data owners

AI/ML providers & data scientists

consumers

analysts & auditors

governance

ai

federators

p portals & decentral applications (dApps)

portals / GUI

applications / API

Blockexplorers

t trust & identity

wallets

SSI/VC issuers

SSI/VC verifiers

d data contracting service

(private) data assets

(private) algorithms

CtD clusters

access controllers

c federated catalogue

metadata caches

e exchange logging & DLT core grid

DID registry

data access & exchange contracts

federated catalogue, access records & audit trails

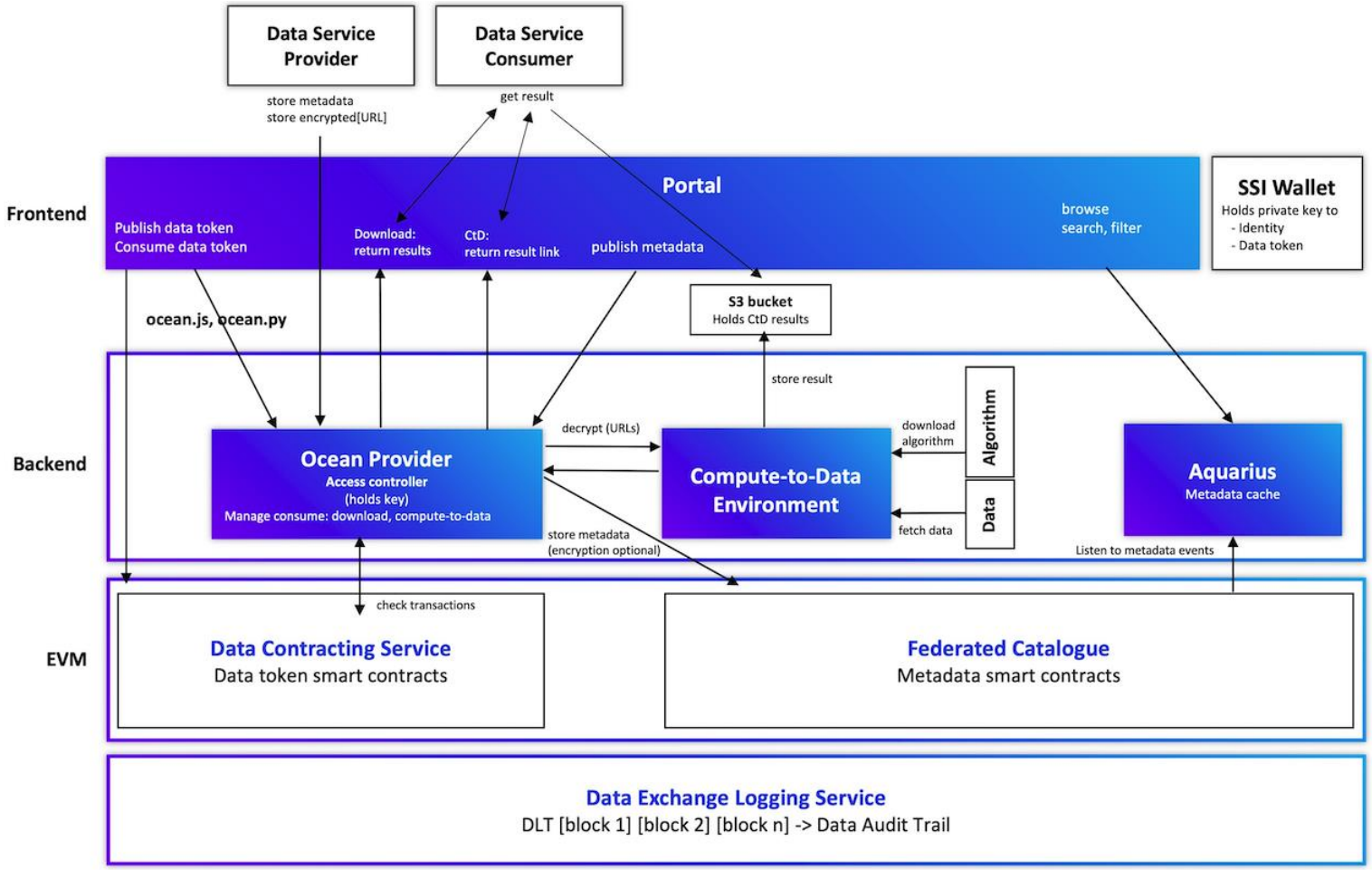
validator nodes

Compliance technically enforced across all levels

federation services related

other infrastructure, apps, users

deep dive #1



Portal

K8s
Catalogue Cache Provider
Operator Engine
Operator Service

Catalogue

DLT Layer

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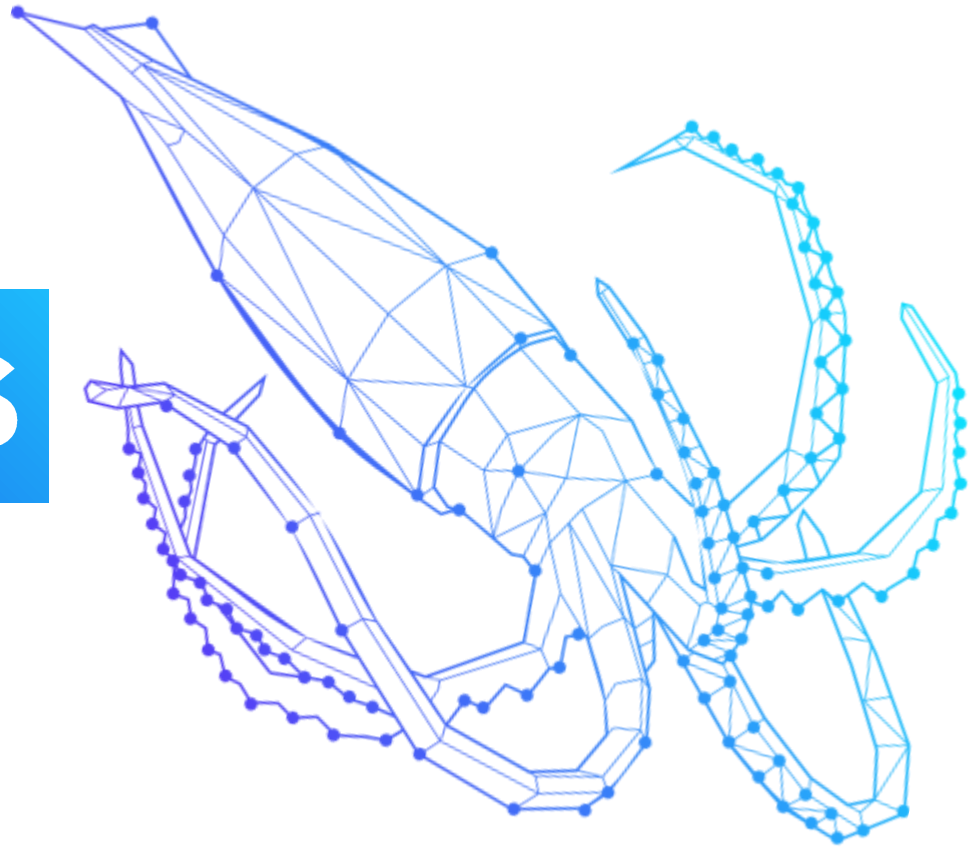
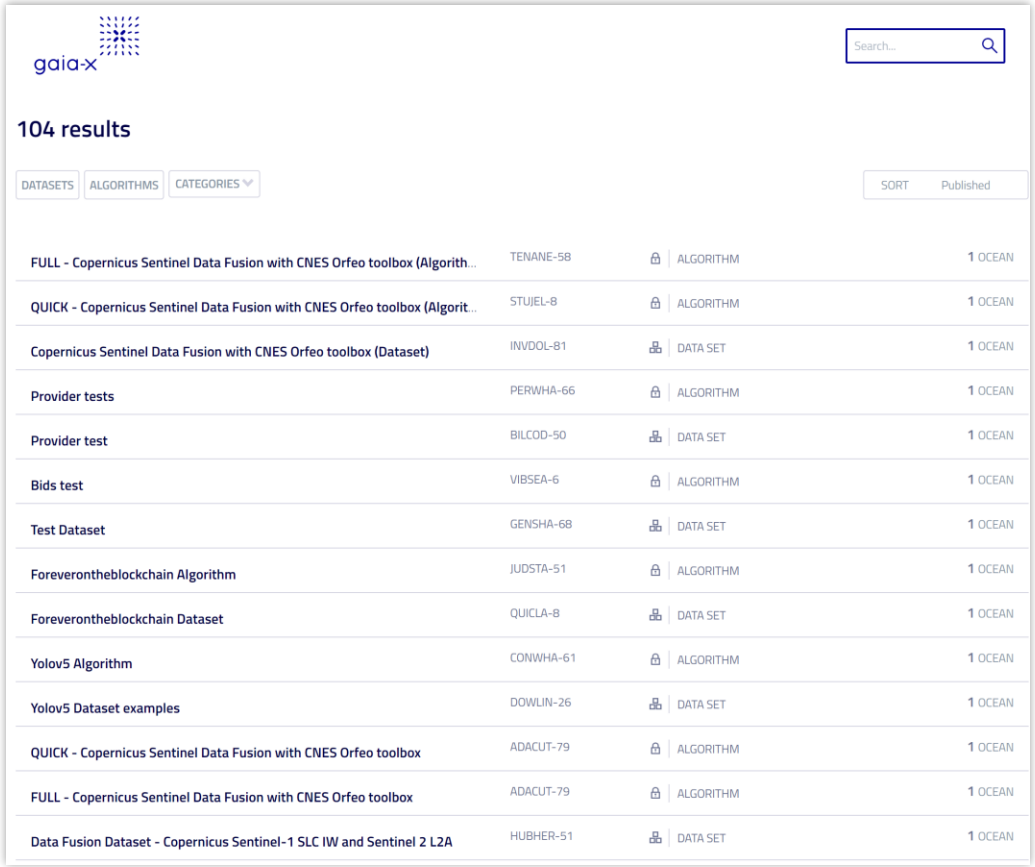
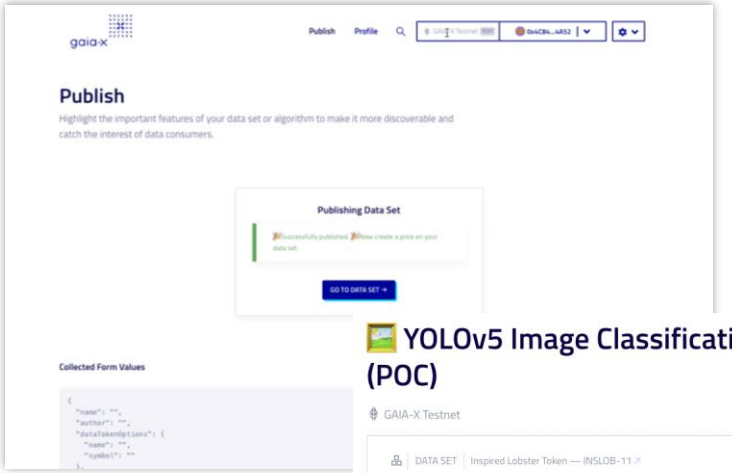
Minimal Viable Gaia-X Features

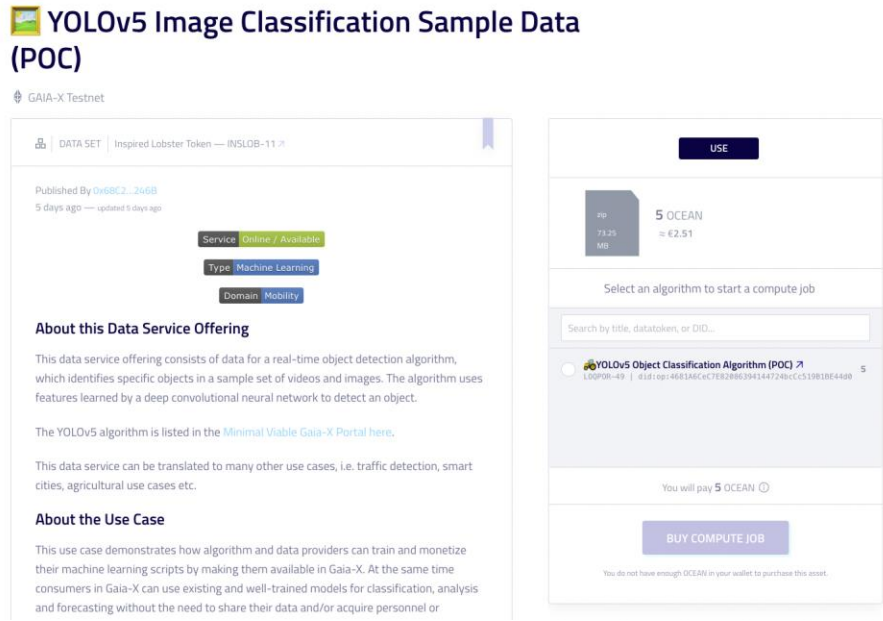


MVG portal

decentralized catalogue, minutes to publish and consume



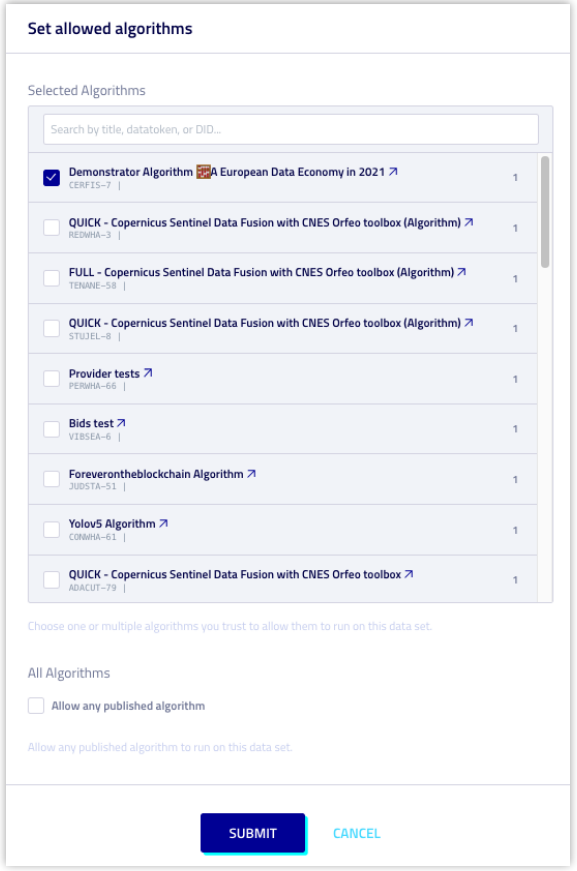


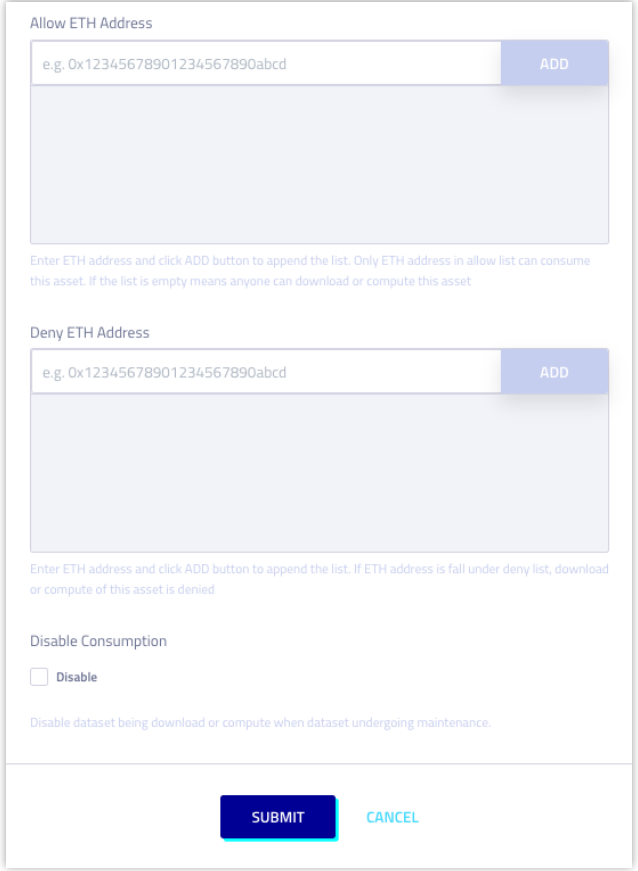


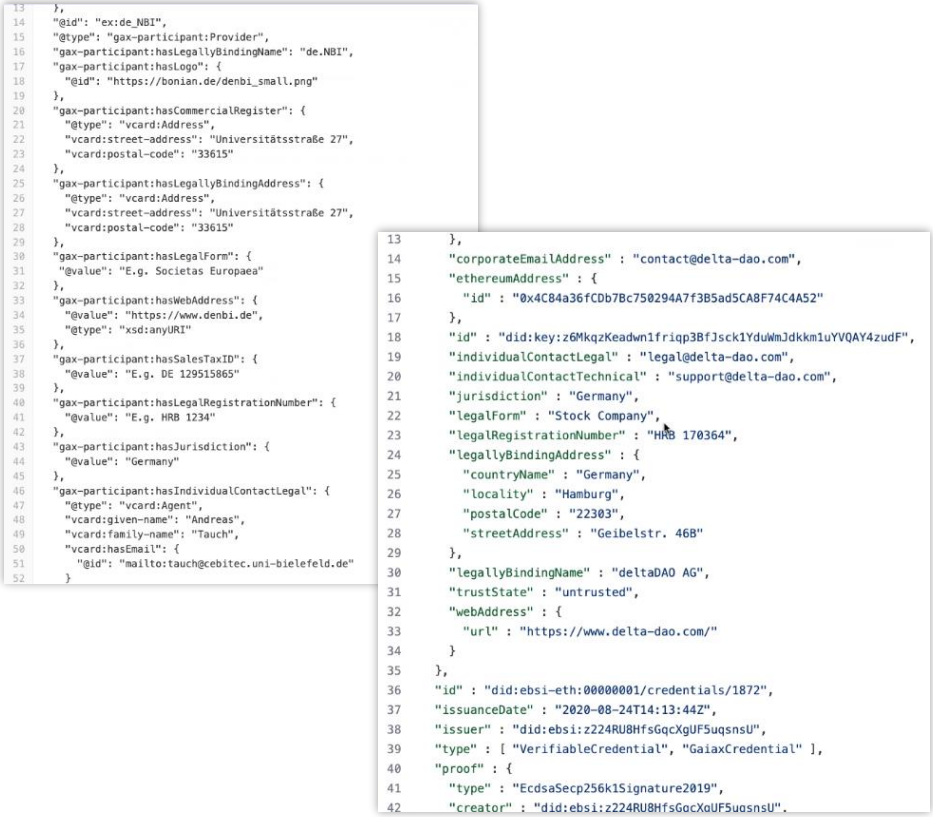
https://catalogue.minimal-gaia-x.eu

Tutorial:https://youtu.be/eAbnM5bfEMc

SSI integration & access control for technical sovereignty







Tutorial:https://youtu.be/vFfYo8LxbzM?list=PLlQKB1A_2IytB5Cf6P0uTTN4hRGbAxw7E

automatic audit trails & security & privacy by design

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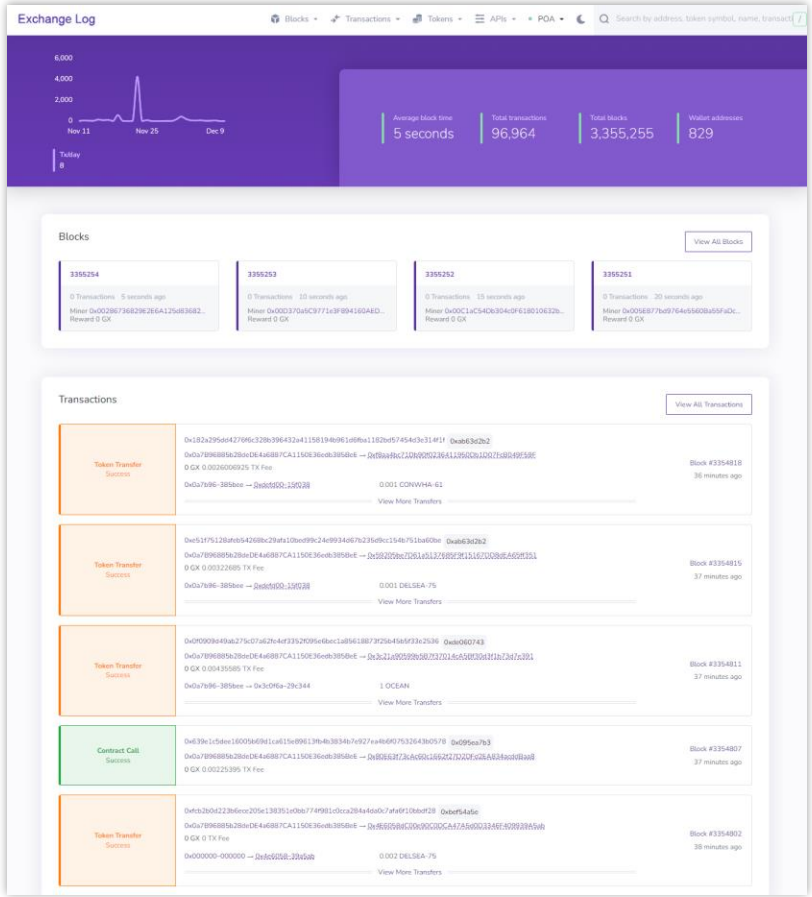

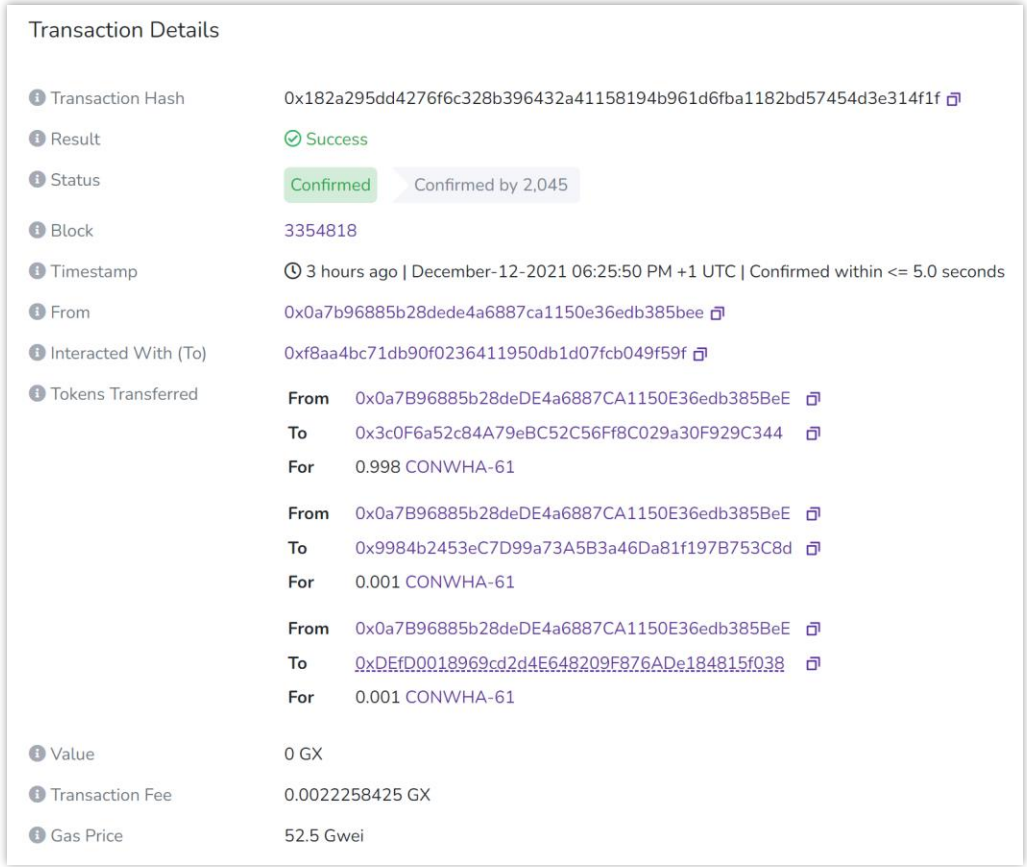

https://exchangelog.minimal-gaia-x.eu/

compute-to-data enables true technical data sovereignty

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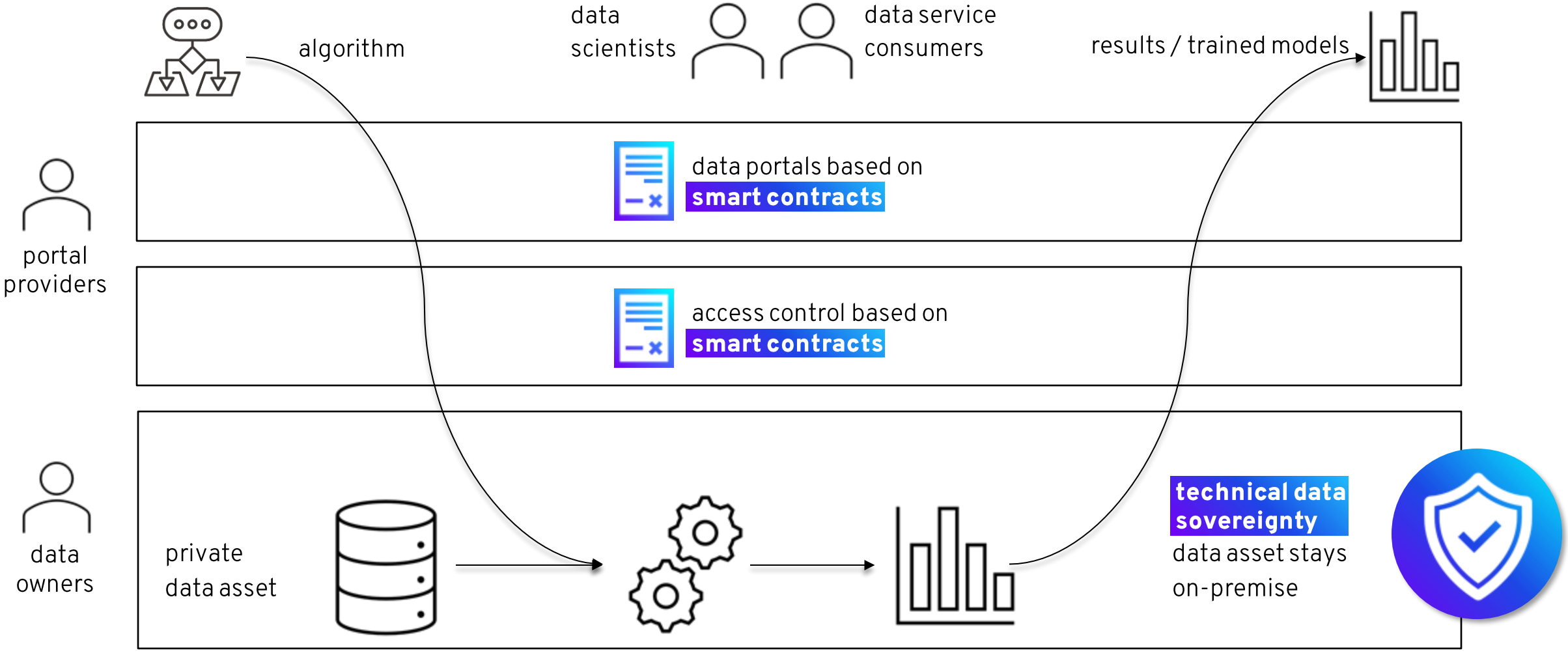

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deltaDAO

data economy solutions – GDPR compliant

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YouTube	deltaDAO

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