

SCS 2023-06-22

Sovereign Cloud Stack: Converting the Vision into Action

Kurt Garloff

garloff@osb-alliance.com

<https://scs.community/>

<https://github.com/SovereignCloudStack/>



<https://scs.community>

Gefördert durch:



aufgrund eines Beschlusses



OSB Open Source
ALLIANCE
Business
Bundesverband für digitale Souveränität e.V.

The vision: 2022 CloudLand Keynote ...



 Sovereign
Cloud Stack

 gaia-x

Sovereign Cloud Stack
Open Source Cloud & Container Stack for Federated Sovereign Infrastructure (Gaia-X)

**Sovereign Infrastructure for
Sovereign Data Processing**

Dr. Manuela Urban, Kurt Garloff, Dirk Loßack, Eduard Itrich,
Felix Kronlage-Dammers, Bianca Hollery-Pfister (OSB Alliance e.V.)

project@scs.sovereignit.de

CloudLand, Brühl, 2022-06-29


OSB Open Source
Business
ALLIANCE
Bundesverband für digitale Souveränität e.V.

Gefördert durch:

 Bundesministerium
für Wirtschaft
und Klimaschutz

aufgrund eines Beschlusses
des Deutschen Bundestages

 gaia-x

Vision ...

One platform - standardized,
built and operated by many.



 Open Source
Business
ALLIANCE
Bundesverband für digitale Souveränität e.V.

Gefördert durch:



aufgrund einer Beschlüsse

des Deutschen Bundestages

gaia-x

Sovereign Cloud Stack

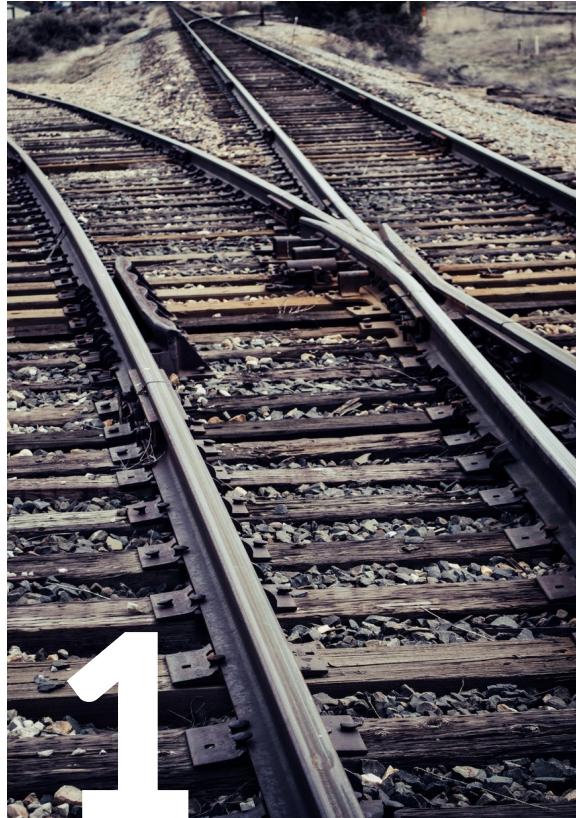
the best of cloud computing in one **unified standard** - simplify using, building and operating

built, backed, and operated by an active **open-source community** worldwide

control of data - by **enabling** Cloud Operators through decentralized, standardized and federated cloud & container platforms

true **digital sovereignty** to foster trust in clouds - enable innovation on sovereign infrastructure - reducing the technical, economical, strategic, legal dependencies

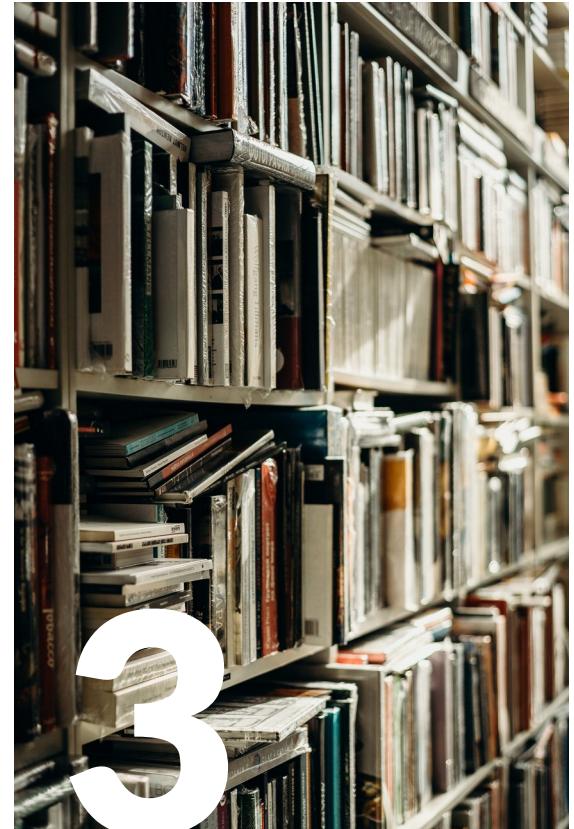
Sovereign Cloud Stack Deliverables



Certifiable Standards



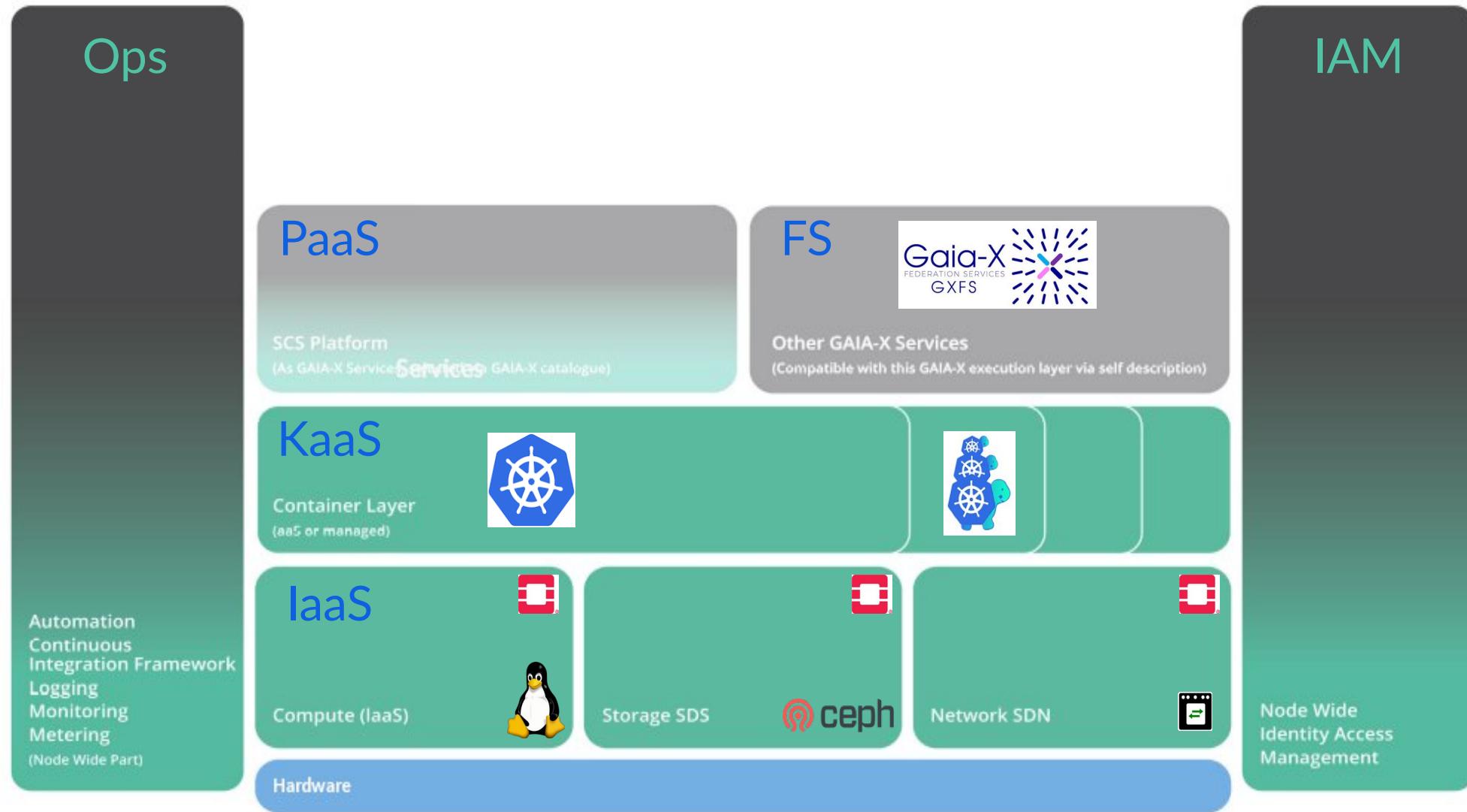
Modular Open Source
Reference Implementation



Operational Knowledge

SCS Architecture (Software/Ref.Impl.)

building it up from the ground



SCS Platform Services (PaaS) are Work-in-Progress
 Hardware and Federation Services not part of SCS software
 KaaS = Kubernetes as a Service



Some learnings

Surprising and less surprising ones ...



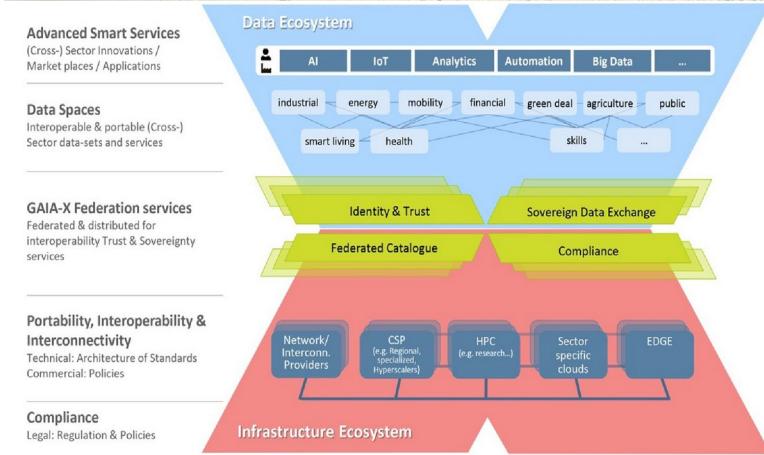
BMWi (now BMWK) – German ministry for economic affairs and energy (now: and climate action) visit

We came well prepared to convince the Gaia-X initiators to embrace Open Source for digital sovereignty.

No convincing was needed. They completely got it. And indicated their willingness to support an initiative with funding to contribute to Gaia-X.

The industry players in Gaia-X were less convinced. Some had a different agenda, some expected religious zealots.

Gaia-X - in or out? A history of trying to contribute



Early-on lots of diverse expectations to Gaia-X. Cloud-Airbus? No!
Unclear goals, little structure.
Sovereign Data Ecosystem: ✓
Sovereign Infra Ecosystem: ?
Focus and structure in 2023

~~SCS Sub Working Group: 2020~~
~~Architecture Board: ('22)~~
~~SCS Open Work Package: 2021~~
~~Provider Working Group (Co-Chair): 22~~
MVG / OSS Group / Hackathons: ✓
Service Characteristics WG: ✓
Close collaboration w/ GXFS: ✓



Speed and Scale



SPRIN-D

Very supportive.
Fast to support project with paid research contract.
Good advice for first supported project.

BMWK

Very supportive.
Bound by slow alignment and decision processes.
Lots of projects ...



The innovators: Christian Berendt,
(Peter Ganten), Kurt Garloff, Dirk
Lossack, (Oliver Mauss)



A strong initial team (2020)

True believers, not optimizing personal income but project outcome.

Writing a 100p funding proposal is no fun.
Plus documenting research results for SPRIN-D.

Building up technology, community, structure in parallel.

Strong support from OSB Alliance (Peter Ganten),
PlusServer (Oliver Mauss), SPRIN-D, BMWK+VDI.

Vorhabenbeschreibung

(zur vertraulichen Behandlung)

Zum Projekt GAIA-X



Vorhaben: Sovereign Cloud Stack

Akronym: SCS



Schlagworte zum Vorhaben:

GAIA-X, SCS, Digitale Souveränität, Infrastruktur, Cloud,
Föderierung, Open Source, Infrastructure as Code, OSB Alliance

Antragsteller:

Open Source Business Alliance – Bundesverband für digitale Souveränität e.V.
Breitscheidstr. 4

70174 Stuttgart

Fon: +49 711 90715-390

Fax: +49 711 90715-350

vertreten durch:

Peter Ganter (Vorstandsvorsitzender)

E-Mail: ganter@osb-alliance.com

Version: 2020-12-21

Funding proposal (12/2020)

Collaboratively written in .rst and managed with git.

Huge work items master spread sheet, extracted data with python (ODSReader) into doc. Needed several times, e.g. when we discovered that we can not deduce VAT.

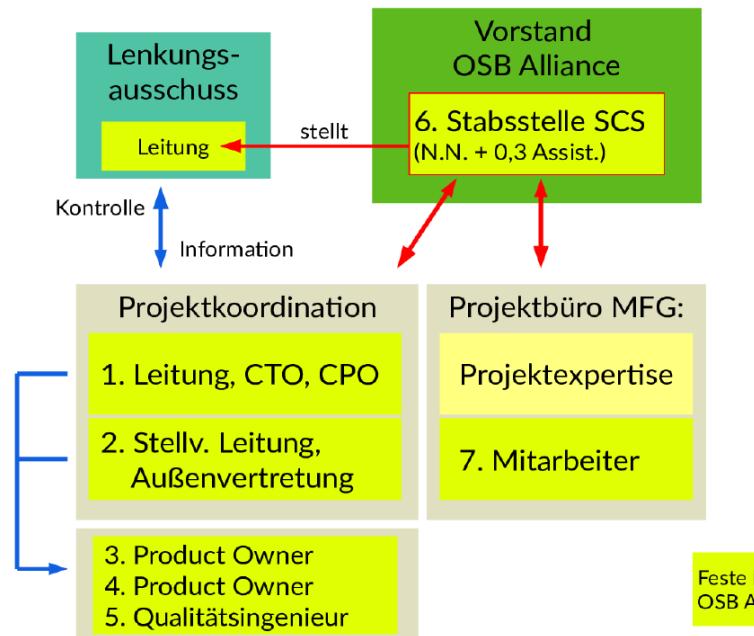
Also handed in offers to substantiate cost calculations and avoid money to be locked.
(1st year only, not very successful ...)

6 months till notice of funding
Lost money and people.

Preparing for a multi-M€ project

OSB Open Source Business ALLIANCE

Bundesverband für digitale Souveränität e.V.



A non-profit org is not the typical (and not the ideal) recipient for BMWK funding.

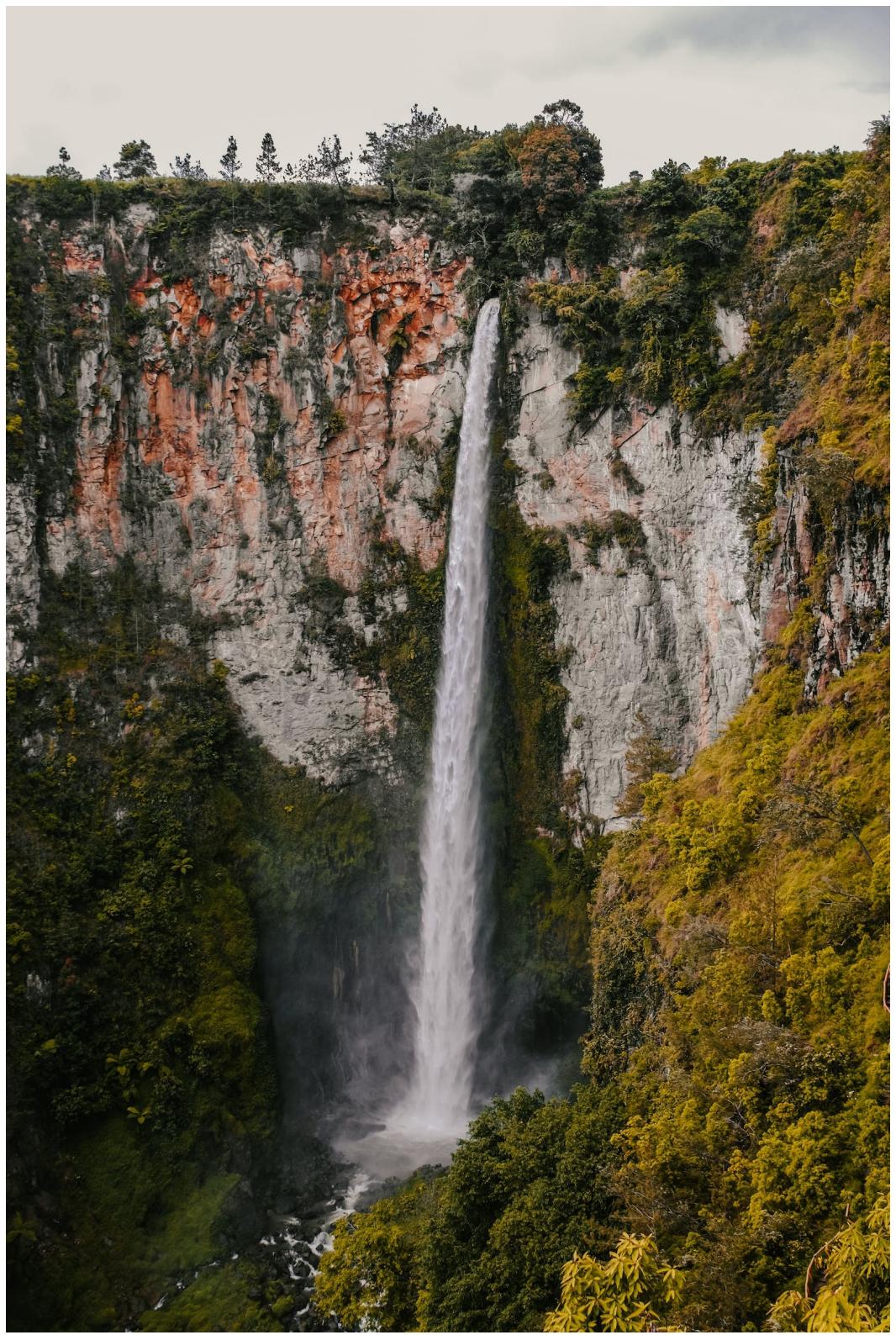
Project significantly larger than base OSBA activities.

Build structure.

Steering and oversight. Decision taking.

Legal advice.

Build trust.



Public funding => Waterfall ?

A myth! Fortunately!

Classical contract type with very detailed requirements and specifications and risk on the contractor to correctly estimate effort is NOT mandated.

SCS: Service contracts with fixed (low) hourly rates.
Chose most qualified contractor in tender.
SCS POs control precise task assignment in agile process.
High-level alignment by contract and monthly reviews.



#	Name	Description	Start date	Closing date	Link to contracting portal
1	OpsTooling, CI Tests Infra/IaaS, Metal as a Service, Life Cycle Management	Lot 1	2021-07-30	2021-08-20	SCS-VP01
2	Ops Best Practice Knowledge Base, CSP Transparency	Lot 2	tba	tba	tba
3	Storage Technology	Lot 3	2023-03-17	2023-04-10 T12:00+02:00	SCS-VP03
4	Networking	Lot 4	2023-02-28	2023-03-22	SCS-VP04
5	K8s aaS Integration	Lot 5	2022-09-27	2022-10-19	SCS-VP05
—	Container Network and Storage Integration	Lot 6a	2023-02-24	2023-03-20	SCS-VP6a-2
6	Container Network and Storage Integration	Lot 6a	2022-09-27	2022-10-19	SCS-VP6a
7	Container Meshing and Proxy	Lot 6b	tba	tba	tba
8	Container Registry / Scanning	Lot 6c	2022-06-29	2022-07-21	SCS-VP6e
9	Container Monitoring / IaC / CI / Deployment Automation	Lot 6d	2021-12-22	2022-01-19	SCS-VP6d
10	Container Tracing & Audit	Lot 6e	tba	tba	tba

The screenshot shows the homepage of the Deutsches Vergabeportal. At the top, there's a dark header bar with a globe icon, 'EN' dropdown, 'Log in' button, and 'Try free of charge' button. Below the header, the portal's logo 'Deutsches Vergabeportal' is displayed with a stylized grid icon. The main title 'Deutsches Vergabeportal' is prominently shown against a background of a cloudy sky with a statue silhouette. On the left, there's a sidebar with links like 'Informations for tenderers' and 'International tenderers'. The central area has three main sections: 'Are you looking for public contracts?' (with a note about 25,000 notices), 'Advantages for foreign tenderers' (with a note about benefits from participating in German contracts), and 'English instructions' (with a note about technical partner support). A vertical sidebar on the right offers 'Contact', 'Newsletter', and 'Support' options.

Tenders

Huge amount of work, completely underestimated.

Well structured, well-understood, risk minimizing thanks to legal advice.

Best case: 130d from spec to award.
(We do several in parallel.)

Still working on the last tenders after almost 2y in project. Should have done less ...

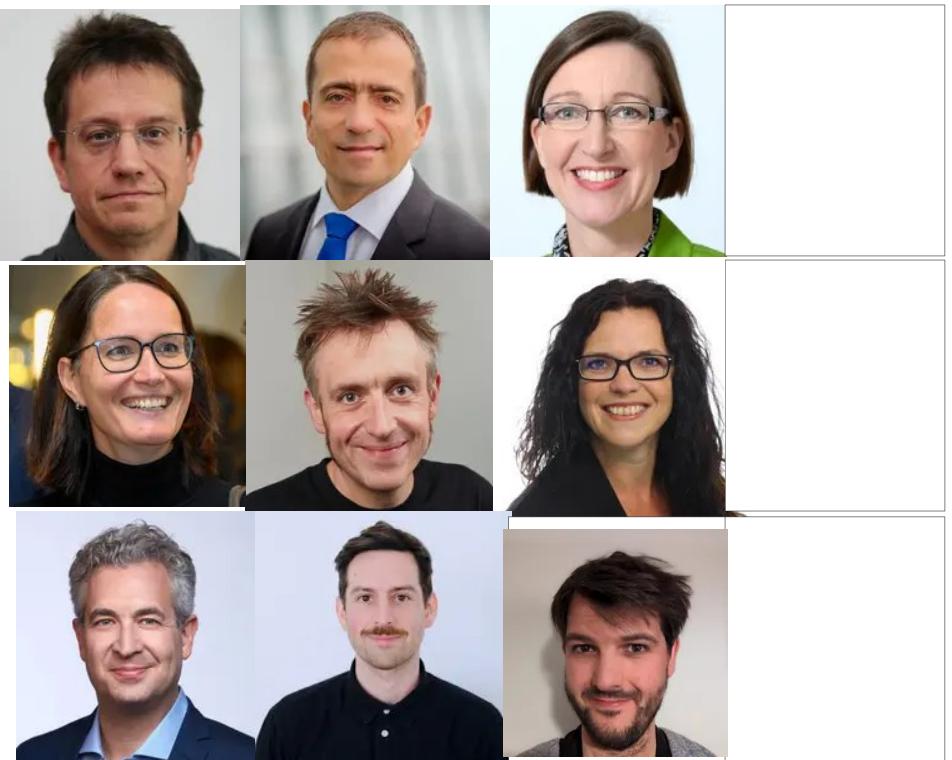
Occasional failures: Low rates don't help.



Staffing

We pay public service salaries (with IT bonus).
We must not pay more. (Besserstellungsverbot)

Not competitive to salaries in IT industry.
(50 – 90% depending on position)



Limited time contracts.

Hiring only possible due to networks of individuals.

- Needs very strong motivation / visionaries
- Ability to afford lower salary
- Considering high visibility („market value“)



Jitsi Meet - SCS Tech Jitsi Meet

Chat and Polls

Chat Polls

documentation.md

15:34 Jonas Schäfer (Cloud&Heat Technik, GmbH) https://iliana.fyi/blog/software-supply-chain/ "cugh"
"cough"

15:40 felix https://scs.community/2022/11/1/cdp-sovereign-cloud-devroom-fosdem-2023/

15:43 TBecker 10-F Session for the Sovereign Day Room "maybe change that to 'BoF-Session or the Sovereign Cloud Dev Room."

15:44 felix thanks @tim. will do.

15:45 felix yes

15:46 felix sdm/foens/ ???

Type a message

SCS Tech 48:38 24

BH Blanca Hollery JS

RB Ramona Beermann Larissa Stoffers - OSIM

SC Steve (C&H) Janis

T FD F

Cemil Degirmenci (noris netwo... Fabienne Stefan Benz



Collaboration

Distributed team
plus co-working space in Berlin
plus Hackathons (~3x/year)

Self-hosted always-available VideoConf (Jitsi)

- Multi-screen-share is an underestimated feature
- Team Meetings, SIG meetings, Comm.Call

Github

UCS with Nextcloud

Mailing Lists

Matrix

Community Digest



Really open

Open has become a marketing term:-)

SCS Open Source Health Check

- Four Opens: Fully Open Source, Open Development, Open diverse Community, Open Design
- Maturity, Security & Maintenance
- Activity & Adoption

Github issues, PRs, project board, minutes, ...



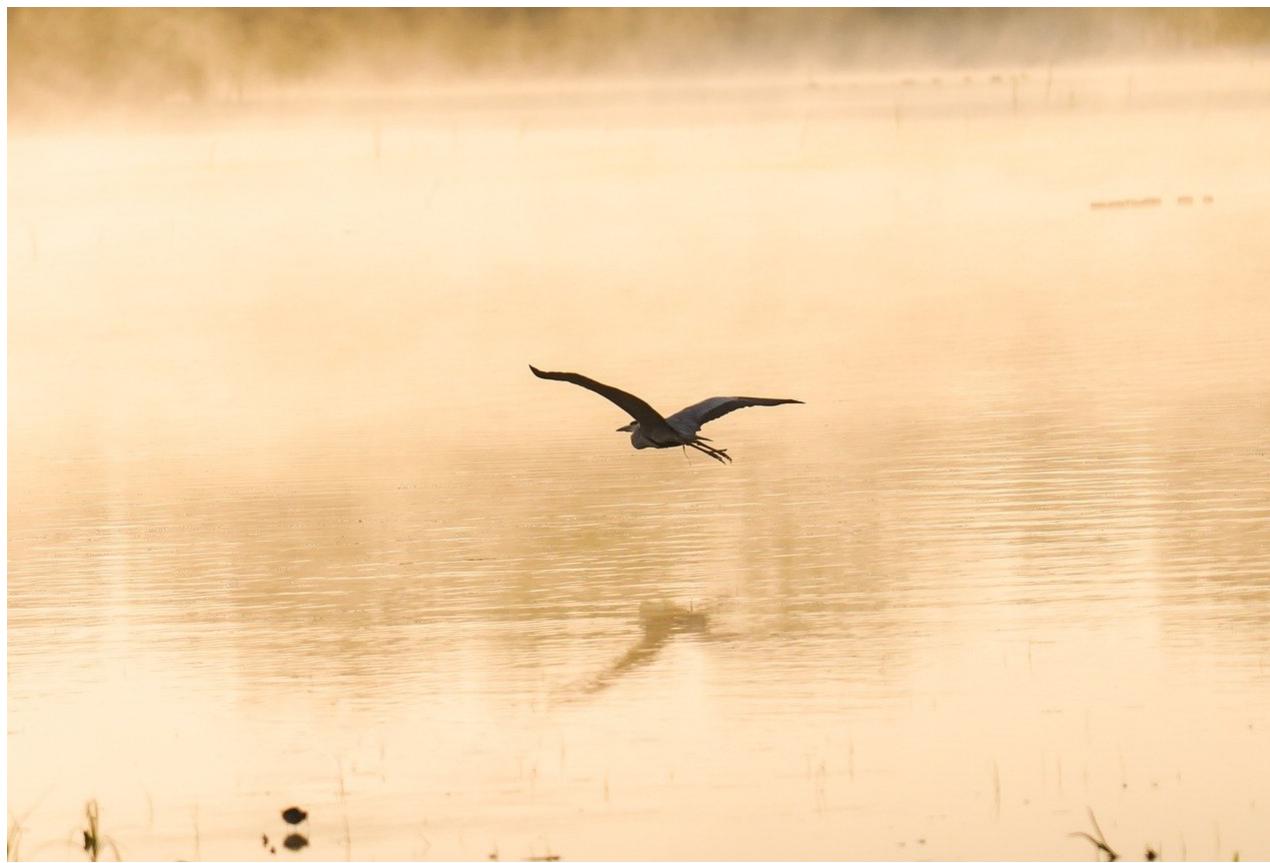
Open Operations

Joint knowledge building for excellent operations

Upstream first!

Healthy community with tender contractors, CSP employees, volunteers





Early adopters

- Real-world usage and real-world feedback
 - Visibility and Credibility
- => Make them successful!

Test and develop concepts

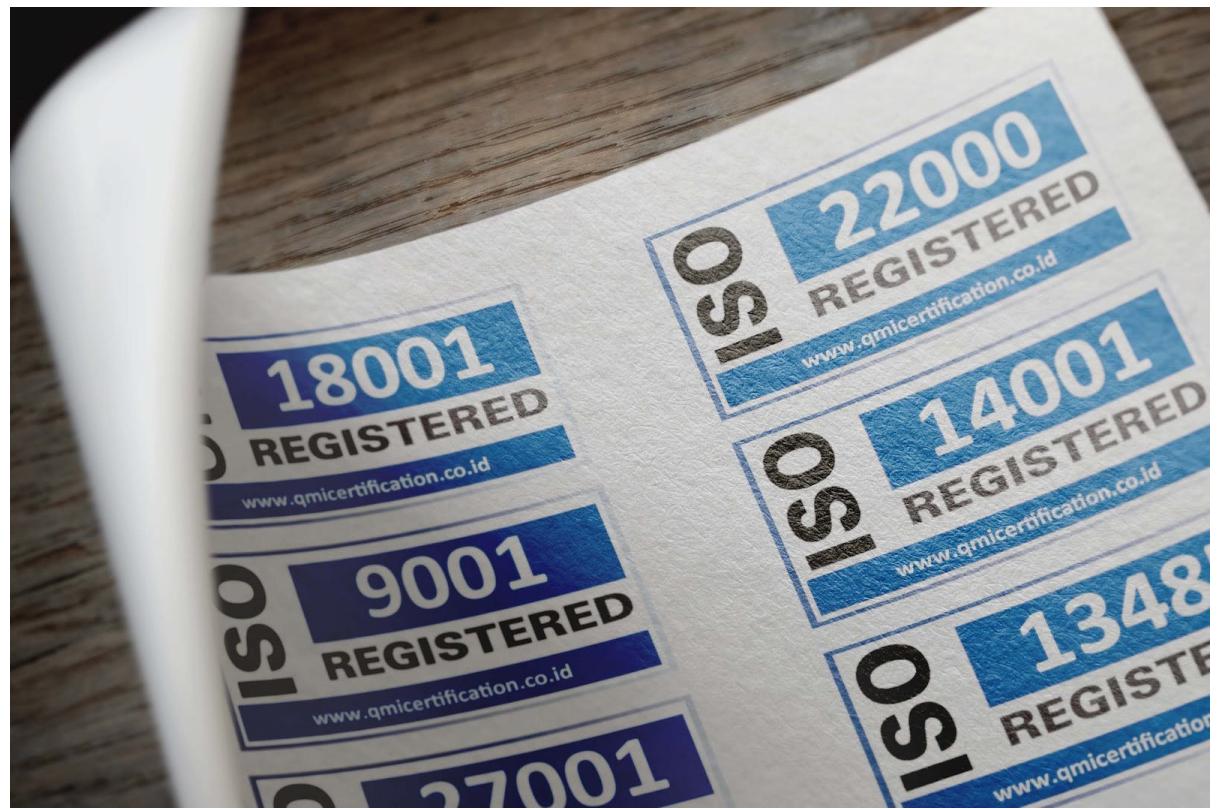
- Fast upgrade policy
- Common standards
- Open Operations

Early availability of technology is a prerequisite for early adoption.

- Half-yearly releases. (R4 from 2023-03-22.)
- Reality more continuous

Now moving to early majority ...





https://docs.scs.community/standards

SCS Docs Standards Community

Sovereign Cloud Stack – Standards and Certification

SCS unifies the best of cloud computing in a certified standard. With a decentralized and federated cloud stack, SCS puts users in control of their data and fosters trust in clouds, backed by a global open-source community.

SCS compatible clouds

This is a list of clouds that we test on a nightly basis against our scs-compatible certification level.

Name	Description	Operator	v1 IaaS Compliance Check	v2 IaaS Compliance Check	HealthMon
gx-scs	Dev environment provided for SCS & GAIA-X context	plusserver GmbH	v1 Compliance passing	v2 Compliance failing	HM
pluscloud open	Public cloud for customers	plusserver GmbH	v1 Compliance passing v2 Compliance passing	v2 Compliance failing	HM
Wavestack	Public cloud for customers	noris network AG/Wavecon GmbH	v1 Compliance passing	v2 Compliance passing	HM
REGIO.cloud	Public cloud for customers	OSIM GmbH		v2 Compliance passing	Dashboard

SCS standards overview

Standardization

Try to make standardization fun

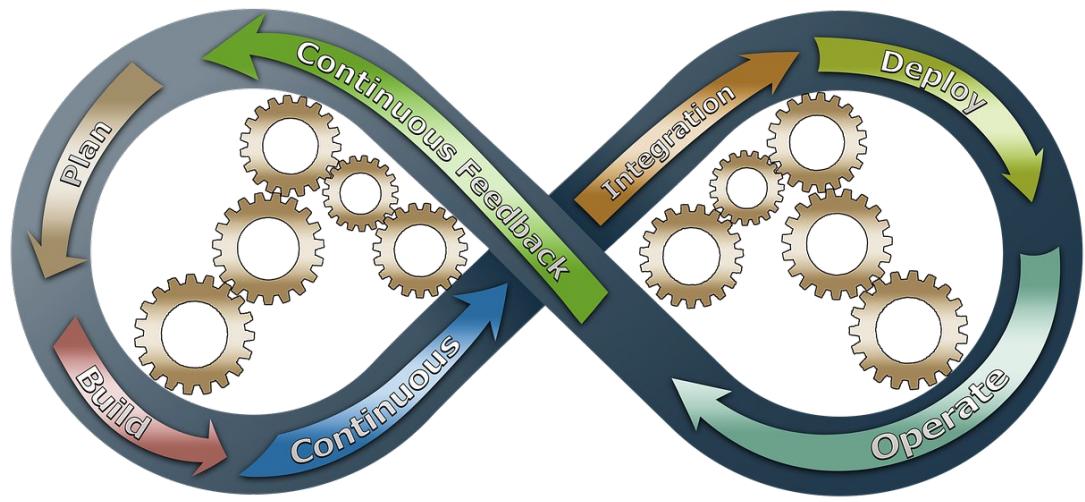
- In lockstep with reference implementation
- Tests developed along with standards
- Automated nightly compliance checks
- Results are public!

Build on top of and enhance upstream standards

- OpenStack powered guidelines
- CNCF conformance checks

Federation practical with

- SCS-compatible compliance
- Identity federation (OIDC)
- Network connectivity

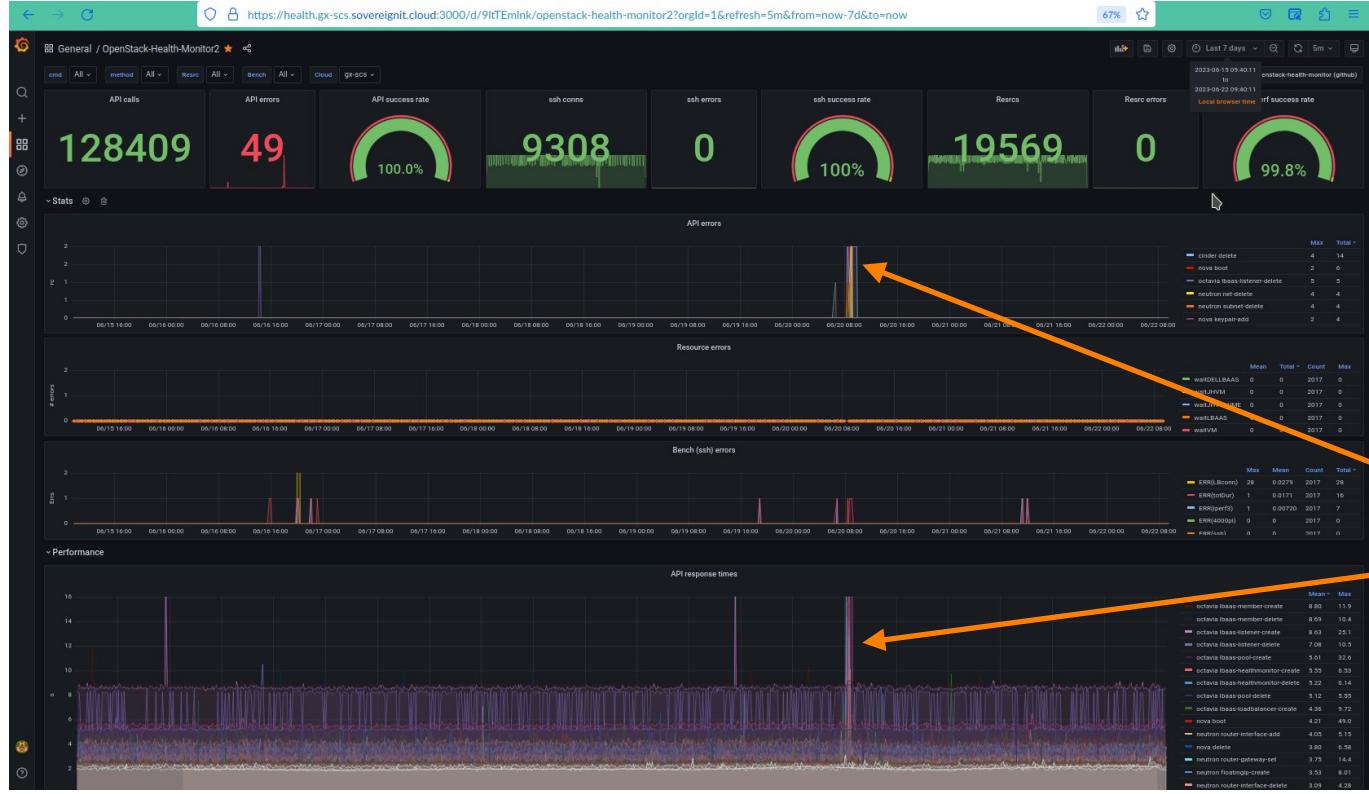


CI and transparency



Investment into continuous testing pays off

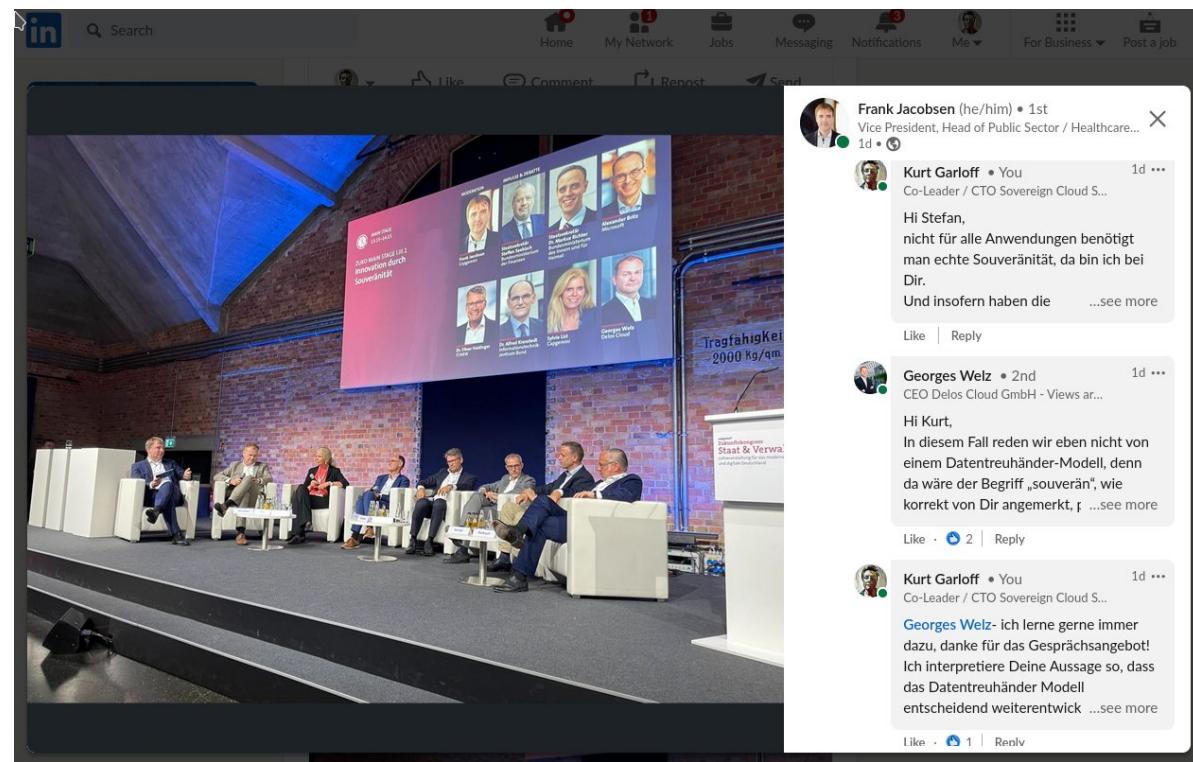
- Also simple formatting checks (github)
 - Nightly upgrade tests (OSISM)
 - Zuul Framework (WIP)



Success in getting all SCS providers to upgrade within < 6 weeks (2x/year)

Constant monitoring

SCS-R5.2 upgrade causing some minutes of announced control plane unavailability.



Sovereignty debate

Sovereignty has become a marketing term :-)

Providing data protection (GDPR compliance) is a good start ... Need much more:

- Ability to chose (without redoing automation/integration)
 - Ability to use many providers and federate
 - Requires standards/compatibility
SCS-compatible
- Ability to shape technology and innovate
 - Requires 4 Opens
SCS-open
- Ability to understand operational status and to self-operate
 - Open Operations
SCS-sovereign

#SCS Summit

23. – 24.05.2023, Berlin



plusserver



Supported by:



on the basis of a decision
by the German Bundestag



Networking and communication

The more agree on joint standards and/or implementation modules, the more successfully we can enable digital sovereignty for our users.

Spreading the word is the job of every team member.

iX, Linux-Journal, CloudLand, OpenInfra Summit, DuD, FOSDEM, The Cloud Report, EclipseCon, heise, tagesspiegel Background, CloudComputing Insider, SZ, Alasca Tech Talks, Meetups, Mercedes FOSS, GXFS connect, FrOSCon, Kielux, CEE, OSBA OSD, OSC, ...



SCS Clouds in production (6/23)

Public Supporters (6/23)

Join us!

<https://scs.community/>



Supporting companies and organizations

23|Technologies



SPRIN-D



cleura



{C} CLOUDICAL



dilossacon



GONICUS



LEITWERK
Die Zukunft Ihrer IT

noris network

Open Infrastructure FOUNDATION



T...

OX Stay Open.



OVHcloud

plusserver

Stackable

StackHPC

Syself

univention
be open

WAVECON

Sovereign Cloud Stack
An OSB ALLIANCE project

CloudLand



Gefördert durch:
 aufgrund einer Beschlusse
des Deutschen Bundestages