



SCS 2024-12-05

Sovereign Cloud Stack: An honest review and outlook

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



<https://scs.community>

Gefördert durch:



aufgrund eines Beschlusses
des Deutschen Bundestages



Free & Open Src SW gives power to society

2020: Open Source is incredibly successful

- Lots of appliances run OSS (TVs, Access Points, ...)
- Android
- Most of the internet-facing services
 - Even on Azure >>50% of the VMs run Linux
- Incredible speed of innovation
 - Enabled by „permissionless innovation“ inherent to Open Source
- Open Source is the default way of collaborating
 - „Inner Source“ within corporations



State of Infrastructure platforms



- They all use a large amount of open source code
- They are all proprietary
 - You can not change the platforms
 - You can not run them yourselves (except VMware – if you can still afford it)
 - Innovation defined by single vendor that you depend on
- Lock-In



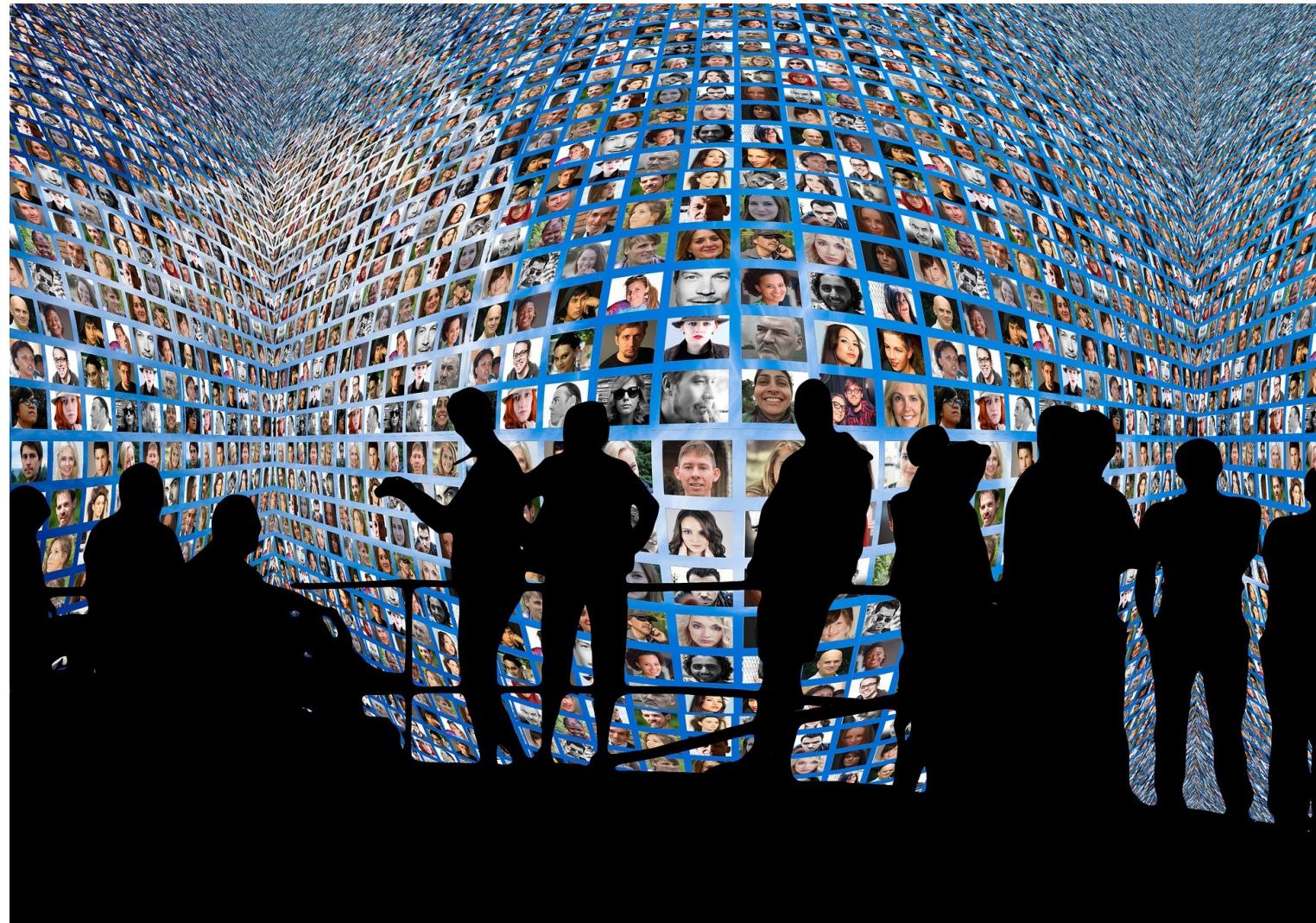


We could do better ...

- Most pieces to build competitive Infrastructure platforms are available as mature OSS technology
 - Even the Hyperscalers use many of them
- We have failed to align to create one (or a few) standardized stacks
 - Too much fragmentation
- Integration and standardization tasks
- Operational standards and skills missing



One platform - standardized, built and operated by many.



Sponsoring for our idea ...



SPRIN-D

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



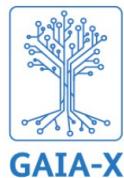
BMW K

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

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.

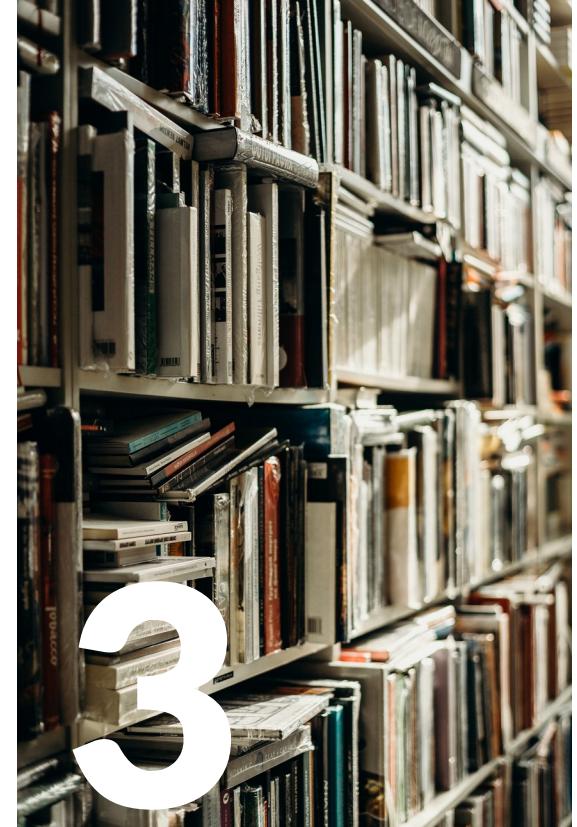
Sovereign Cloud Stack Deliverables



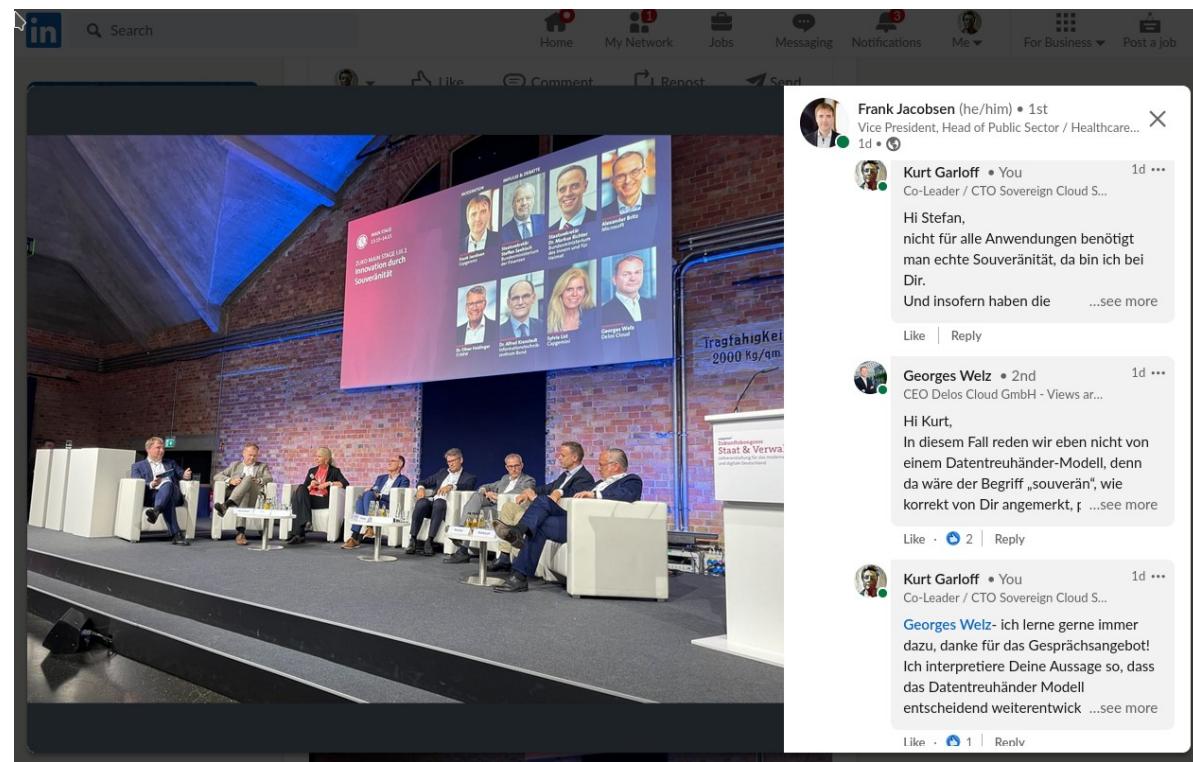
Certifiable Standards



Modular Open Source
Reference Implementation



Operational Knowledge



Sovereignty debate

Sovereignty has become a marketing term :-)

- Providing data protection (GDPR compliance) is a good start ... “data sovereignty”.
- 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 “technological sovereignty”
 - Requires 4 Opens
SCS-open
 - Skills to understand and operate infrastructure
 - Open Operations
SCS-sovereign

10/2022

DuD
Datenbank und Datenwirtschaft

the cloud report

Digital Sovereignty

Additional: Sovereign Technology – Open Source – Data Resiliency – New Work – Open Policy Agent – Container Days



Digital Sovereignty & SCS Certification

Levels of digital sovereignty

- 4: Operational Transparency and accessible Knowledge (Skill building)
- 3: Technological Transparency and ability to contribute and shape
- 2: Choice between many operators, in-sourcing option (on-premise)
- 1: Compliance with regulation (GDPR)



SCS Certification Level

- 
- 
- 4: “**SCS**-sovereign” – Ops/IAM stacks are OSS; transparency on monitoring and incidents, contribution to Open Operations (5 Opens)
 - 3: “**SCS**-open” – SBOM for functional stack available and fully OSS (4 Opens)
 - 2: “**SCS**-compatible” – technical compatibility (conformity tests from CNCF, OIF, SCS)
 - 1: (Not SCS-specific): ENISA/Gaia-X labels & legal rules



SCS Standards

Gefördert durch:



Bundesministerium
für Wirtschaft
und Klimaschutz

aufgrund einer Beschlusser
des Deutschen Bundestages

 [Standards](#) [For Operators](#) [For Contributors](#) [Community](#) [FAQ](#)

- Introduction
- Certification
- Scopes and Versions
- SCS Compatible IaaS
- SCS Compatible KaaS
- Standards** ▼
- Global ▼
- scs-0001 >
- scs-0002 >
- scs-0003 >
- scs-0004 >
- scs-0112 >
- IaaS ▼
- scs-0100 >
- scs-0101 >
- scs-0102 >
- scs-0103 >
- scs-0104 >
- scs-0110 >
- scs-0111 >
- KaaS ▼
- scs-0200 >
- scs-0210 >
- scs-0211 >
- scs-0212 >
- scs-0213 >

[Home](#) > [Standards](#)

Overview

Standards are the core deliverable of SCS. By standardizing the open source software components of a cloud computing stack, their versions, how they are to be configured, deployed and utilized, SCS guarantees the reproducibility of a certain behavior of this technology.

SCS standards are discussed, developed and maintained in the community by the corresponding teams (see Track in the table below), which naturally include existing users of SCS.

*Legend to the column headings: Draft, Stable (but not effective), Effective, Deprecated (and no longer effective).

Standard	Track	Description	Draft	Stable*	Effective	Deprecated*
scs-0001	Global	Sovereign Cloud Standards	-	-	v1	-
scs-0002	Global	Standards, Docs and Organisation	v2	-	v1	-
scs-0003	Global	Sovereign Cloud Standards YAML	v1	-	-	-
scs-0004	Global	Regulations for achieving SCS-compatible certification	v1	-	-	-
scs-0112	Global	SONiC Support in SCS	v1	-	-	-
scs-0100	IaaS	SCS Flavor Naming Standard	-	-	v3	v1, v2
		Supplement: Implementation and Testing Notes	w1	-	-	-
scs-0101	IaaS	SCS Entropy	-	-	v1	-
		Supplement: Implementation and Testing Notes	w1	-	-	-
scs-0102	IaaS	SCS Image Metadata Standard	-	-	v1	-
scs-0103	IaaS	SCS Standard Flavors and Properties	-	-	v1	-

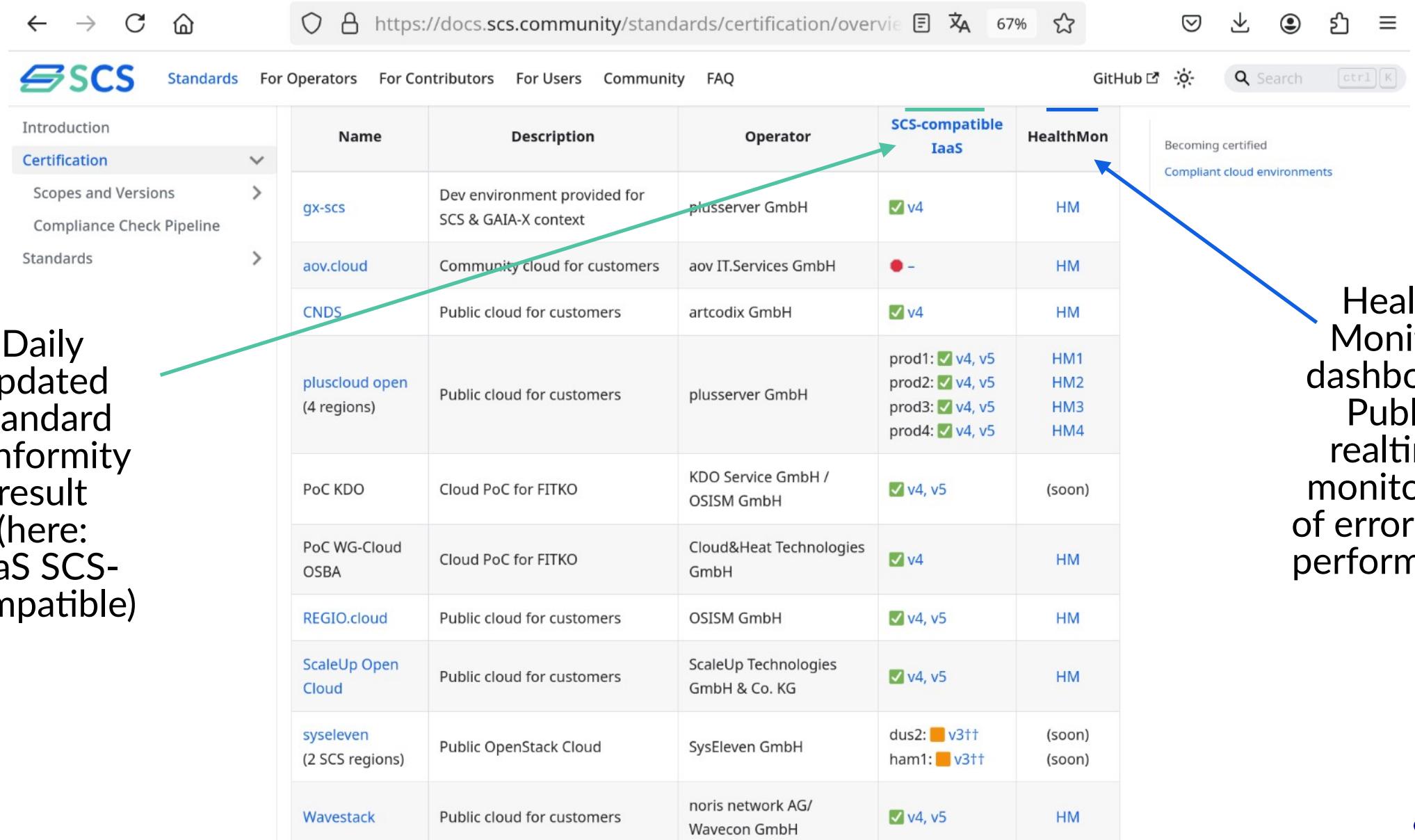


Existing public providers

Daily updated standard conformity result (here: IaaS SCS-compatible)

Becoming certified Compliant cloud environments

Health Monitor dashboard: Public realtime monitoring of errors and performance

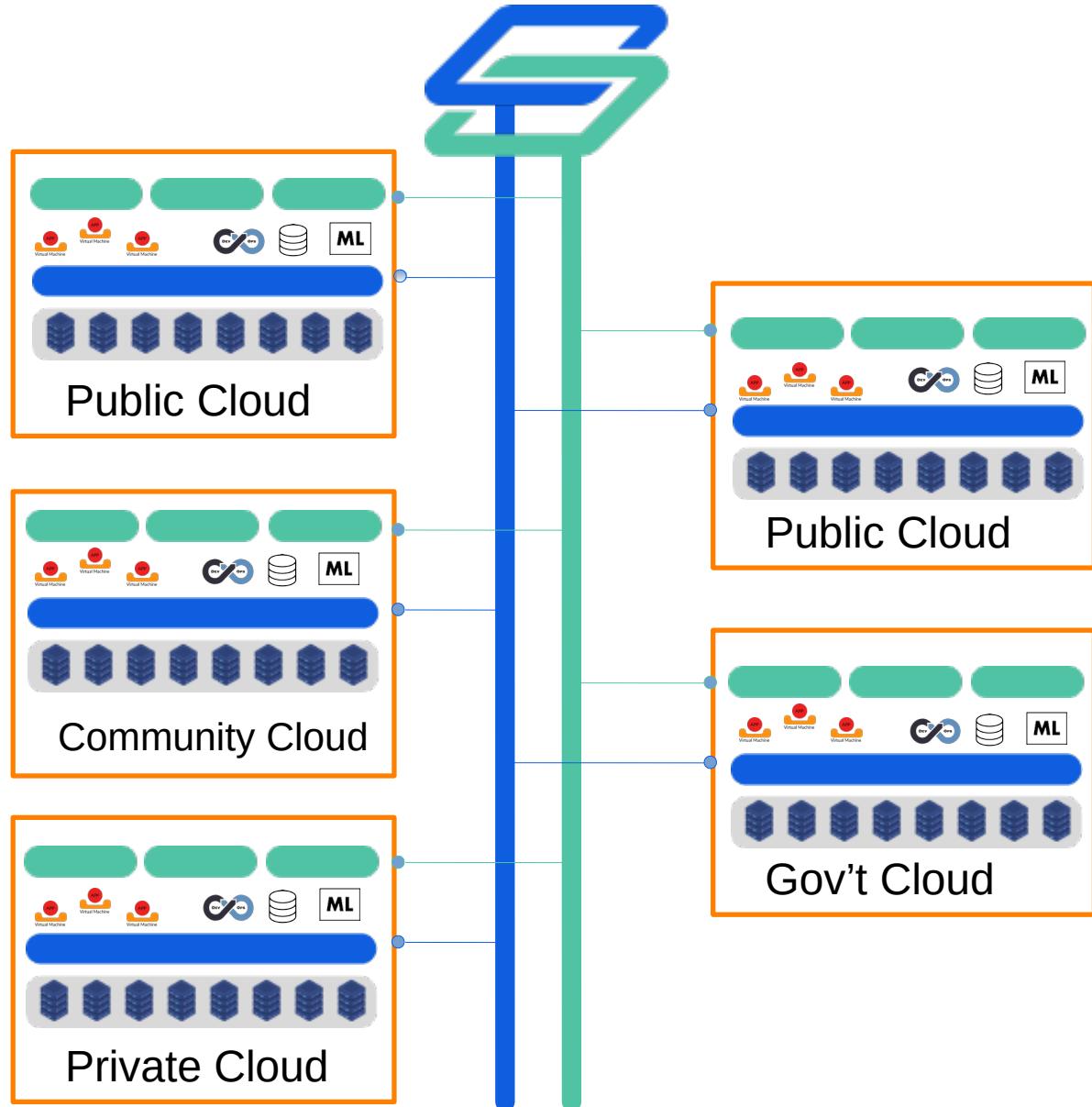


The screenshot shows a table of public providers with columns for Name, Description, Operator, SCS-compatible IaaS, and HealthMon. A green arrow points from the 'SCS-compatible IaaS' column to the 'HealthMon' column. A blue arrow points from the 'HealthMon' column to the right side of the table.

Name	Description	Operator	SCS-compatible IaaS	HealthMon
gx-scs	Dev environment provided for SCS & GAIA-X context	plusserver GmbH	v4	HM
aov.cloud	Community cloud for customers	aov IT.Services GmbH	-	HM
CNDS	Public cloud for customers	artcodix GmbH	v4	HM
pluscloud open (4 regions)	Public cloud for customers	plusserver GmbH	prod1: v4, v5 prod2: v4, v5 prod3: v4, v5 prod4: v4, v5	HM1 HM2 HM3 HM4
PoC KDO	Cloud PoC for FITKO	KDO Service GmbH / OSISM GmbH	v4, v5	(soon)
PoC WG-Cloud OSBA	Cloud PoC for FITKO	Cloud&Heat Technologies GmbH	v4	HM
REGIO.cloud	Public cloud for customers	OSISM GmbH	v4, v5	HM
ScaleUp Open Cloud	Public cloud for customers	ScaleUp Technologies GmbH & Co. KG	v4, v5	HM
syseleven (2 SCS regions)	Public OpenStack Cloud	SysEleven GmbH	dus2: v3tt ham1: v3tt	(soon) (soon)
Wavestack	Public cloud for customers	noris network AG/Wavecon GmbH	v4, v5	HM



Federated Infrastructure



Built on Common standards

... for users of cloud services to enable mobility of workloads

... for cloud service providers to offer standardized lock-in-less services

... for the ecosystem to build knowledge and skills on a common technical and organizational foundation

... for solution providers that want to build on a common platform



SCS Software

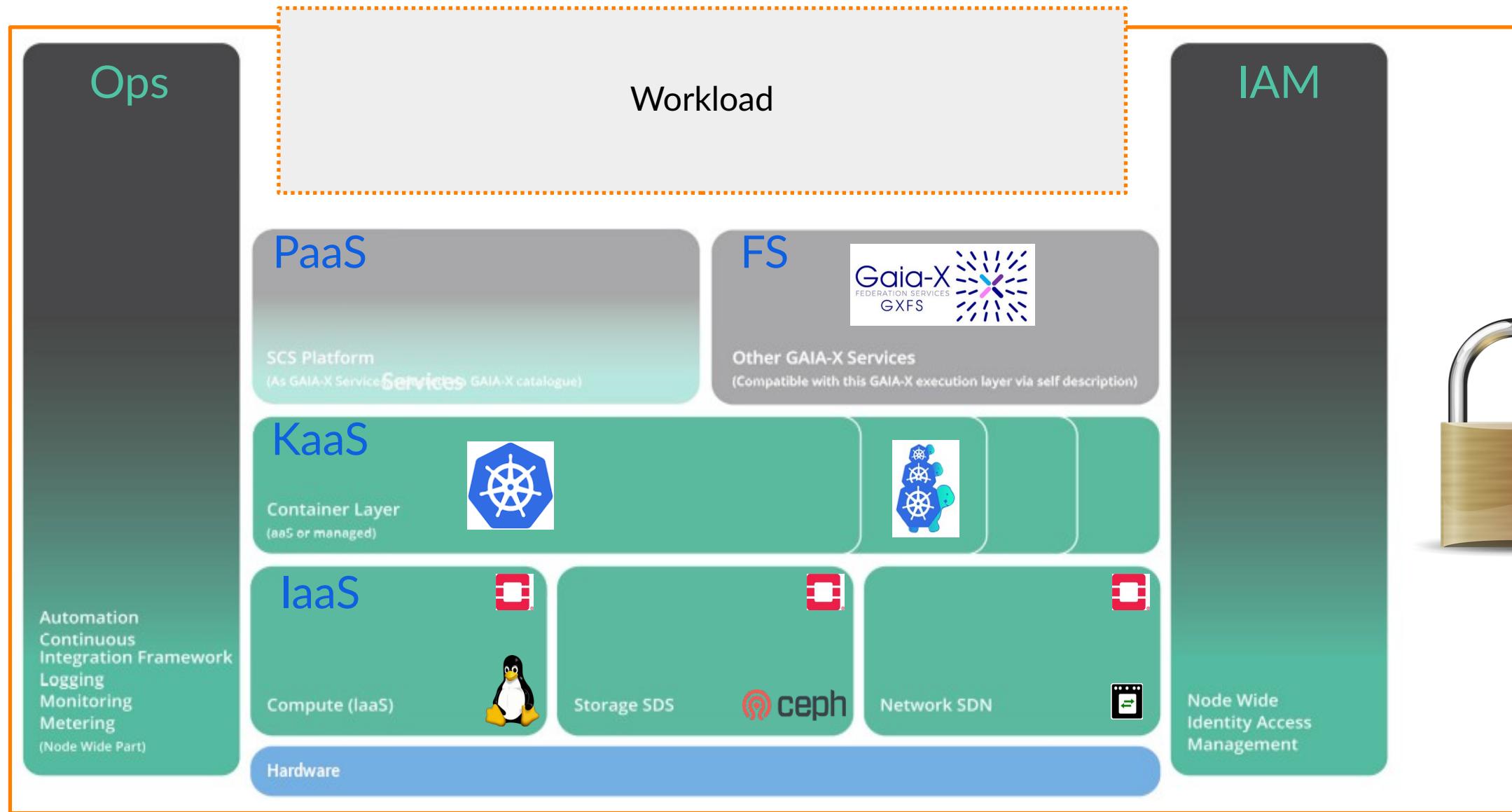
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des Deutschen Bundestages

SCS Architecture (Software/Ref.Impl.)

building it up from the ground



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



#	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

EN ▾

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Deutsches Vergabeportal

Are you looking for public contracts?
Over 25,000 cross-portal public procurement notices daily from all sectors.

Advantages for foreign tenderers
Learn how and why your business benefits from participating in public contracts in Germany.

English instructions
Our technical partner provides a quick overview of the functions and possibilities of the portal.

Contact
Newsletter
Support

Informations for tenderers
International tenderers
Portal usage instructions

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.)

Working on the tenders took 2.5y in project. Should have done less ...

Occasional failures: Low rates don't help.



Really open

Open has become a marketing term :-(

SCS Open Source Health Check

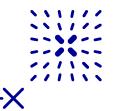
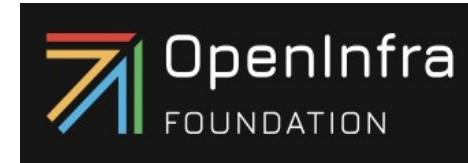
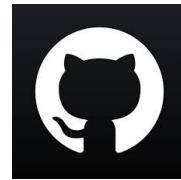
- Four Opens: Fully Open Source, Open Development, Open diverse Community, Open Design
- Maturity, Security & Maintenance
- Activity & Adoption

Github issues, PRs, project board, minutes, ...
Meets (Jitsi), Matrix, MLs,

Open Operations
Joint knowledge building for excellent operations

Upstream first!

Healthy community with tender contractors, CSP
employees, volunteers





SCS Knowledge

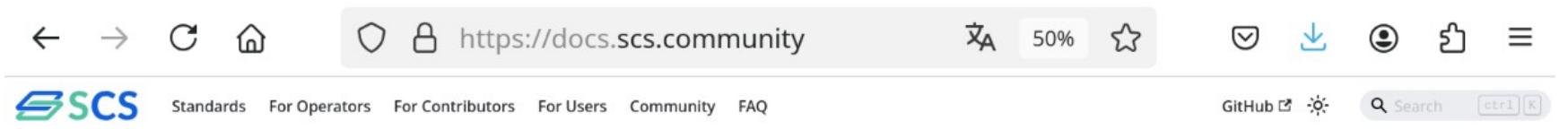
Gefördert durch:



gaia-x

aufgrund einer Beschlüsse
des Deutschen Bundestages

Open Knowledge



A screenshot of a web browser displaying the SCS Documentation homepage. The URL is https://docs.scs.community. The page features a navigation bar with links to Standards, For Operators, For Contributors, For Users, Community, and FAQ. There are also GitHub and search icons. A sidebar on the right says "OPEN SOURCE EXPERIENCE". The main content includes sections for "Welcome to the SCS Documentation", "Architectural Layers", and "Additional Resources". Each section has a "Learn More" button.

Welcome to the SCS Documentation

Find user guides, code samples, deployment examples, reference, community pages and more.

Introduction to SCS

Get to know SCS better and learn about the background.

[Get Started](#)

Releases

SCS is currently in Release 7. Check out the latest Release Notes.

[Learn More](#)

Frequently Asked Questions

You are curious what SCS is all about, what it can do and what it can't?

[Get Answers](#)

Existing Public Clouds

There are SCS compliant public clouds in production.

[Test Them](#)

Architectural Layers

Ops Layer

Tooling and infrastructure design for easy, efficient and transparent ways to operate an SCS Cloud.

[Learn More](#)

Container Layer

SCS offers a robust solution for managing container workloads on a Kubernetes infrastructure.

[Learn More](#)

IAM Layer

Working on Keycloak federated identity provider within our Team IAM.

[Learn More](#)

IaaS Layer

SCS offers OpenStack infrastructure solutions based on KVM virtualization to deploy VM workloads and enabling the container layer optionally.

[Learn More](#)

Additional Resources

Get in touch

Come into our Matrix Chat in the SCS | Tech Room.

[Join Now](#)

Come to our Meet-Ups

Our working groups and special interest groups meet weekly or biweekly. When? Find out within our public community calendar.

Standardization in progress

Get to know our current Decision Records and Standards.

[Start Now](#)

Deployment Examples

Get to know different ways to deploy SCS with cloud resources or on bare metal.

[Explore Cases](#)



<https://openoperations.org/>



We build a community of practice

Open Operations builds a community of practice to keep the barrier to entry low and create a thriving environment for comfortable exchange.

We share knowledge

The availability of knowledge and skilled engineers is the limiting factor for many organizations to adopt, leverage, and successfully operate complex technology.

We're transparent about our incidents

We firmly believe that failures make us experts. The way we handle mistakes is how we become better.

We're transparent about our operational processes

We share our internal processes for the sake of transparency. We firmly believe that transparency leads to better and more reliable processes.



SCS Adoption

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SCS Summit 2024



Supporting companies and organizations

23| Technologies



SPRIN-D



{C} CLOUDICAL



GONICUS
PIONEERS OF OPEN SOURCE



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

PROVENTA



stackXperts



Existing CSP

Future CSP



cleura



noris network



Stackable

univention
be open



StackHPC



SCS compat

Impl. Partner

Upcoming:

+BASF

+TLRZ

+sys eleven

+LinuxHotel

OPEN
SOURCE
EXPERIENCE

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des Deutschen Bundestages

OpenDesk on Sovereign Cloud Stack



Flexible, secure,
digitally sovereign
office collaboration
solution

Standardized, secure,
digitally sovereign
infrastructure



SCS Future

GovStack Specs for Cloud Computing

File Edit View History Bookmarks Tools Help

B 2 Description | Cloud Infra X +

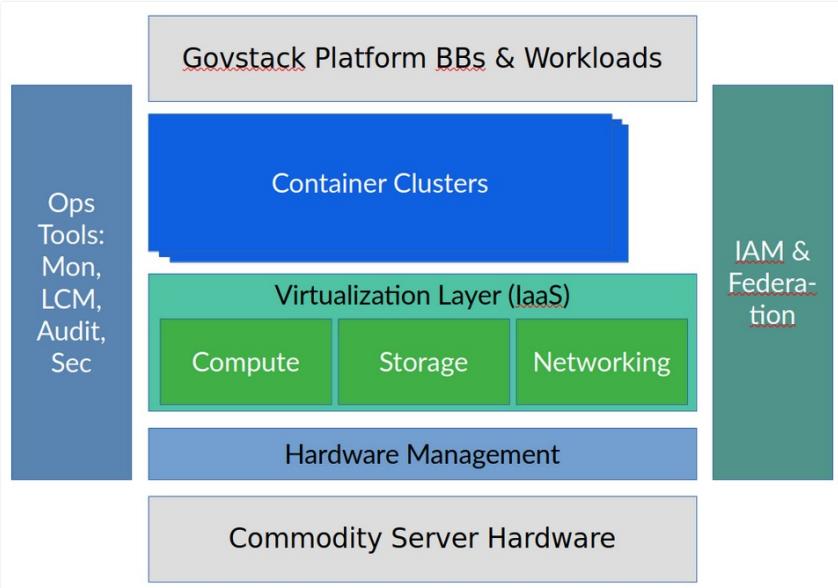
GovStack 24Q3 v

Cloud Infrastructure
1 Version History
2 Description
3 Terminology
4 Key Digital Functionalities
5 Cross-Cutting Requirements
6 Functional Requirements
7 Data Structures
8 Service APIs
9 Internal Workflows
10 Other Resources

Give Feedback GovStack Home Ask or Search Ctrl + K

These workloads are called cloud-native. While the first wave of these were based on virtual machines (VMs), we see a second, larger wave of these that leverage container technologies. In many cases, these containers run on top of virtual machines, thus allowing to balance good developer abstractions and fast scalability (where container technologies excel) with flexibility and isolation requirements (the strength of virtualization technology). In dedicated environments however, it can be beneficial to cut out the complexity of a virtualization layer and to run containers on bare-metal.

In all cases, users of the technology should consider the dependencies on providers of technology and infrastructure and take deliberate decisions on all components of the technology stack required to develop and run their workloads.



Architecture of the Cloud and Container Building Block. The Hardware and the Platform Building Blocks and Workloads are not part of this BB but were included for completeness. The architecture assumes many container clusters rather than just one for isolation reasons. Platform BBs and Workloads can directly access the IaaS/ Virtualization Layer, but most modern ones will be implemented using container technology.

Powered by GitBook



[https://govstack.gitbook.io/bb-cloud-infrastructure](https://govstack.gitbook.io/bb-cloud-infrastructure/2-description)



Sovereign Cloud Stack

Building Block
Cloud Infrastructure (Level 2)

[Full Report](#)

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des Deutschen Bundestages

Protection&Control: Sustainable future of the SCS idea: Two entities, idea & brand are in the non-profit organisation

Forum SCS-Standards @ OSBA e.V.

Holds the IP rights on the **SCS** **brand** (and is thus unique), sets the rules for the brand usage

Charitable / Non-profit (OSBA)

Cares for and orchestrates a fair and transparent ecosystem as „neutralizer“.

Further development of **Standards** und **Certifications**, employs personell for this

Membership and usage fees from Operators and Partners (prerequisite for brand usage)

Creates visibility and trust in the market and the whole ecosystem

Collaborates with upstream communities

Partner for „certification-only partners“

Technology companies

Partner for users of the SCS **Software (Reference Implementation)**

Brand usage only possible within the limits set by Forum SCS @ OSBA e.V.

Further development, warranty, maintenance and backend support for SCS Software

Earns maintenance & support fees

Several such commercial entities exist: OSISM, sysself, dNation, Cloud&Heat, ...

Try setting up a central entity that creates a turnkey product (with coordinated policies, roadmap, maintenance, support) and orchestrates cross-stack common development needs: S7n Cloud Services GmbH



Sovereign Cloud Stack (SCS) sustainable future



Lisa Reisch

October 23, 2024

OSBA and members found the forum SCS-Standards

Berlin, 2024-10-23: Sovereign Cloud Stack (SCS) provides all cloud-technological foundations to realize digital sovereignty and open source strategies and gives users control over their data. The research project, funded by the German Ministry for Economic Affairs and Climate Action and carried out by the Open Source Business Alliance (OSBA), will be concluded as planned on 2024-12-31. The OSBA and 14 member companies have taken care to ensure a sustainable future for the key results and to further advance the SCS standards.

Sovereign Cloud Stack, funded with roughly 13.2 million Euros, will continue to receive professional development and be available for the cloud market after the project phase. The OSBA and 14 of its member companies are founding the forum SCS-standards effective 2025-01-01. This consortium inside the OSBA takes responsibility for the standards and certifications and their further evolution in the future. This also ensures the quality assurance in a sustainable manner. All users of Sovereign Cloud Stack and the whole ecosystem around SCS can thus have assurance of relying on a future-proof cloud technology.

"SCS embodies quality, transparency and interoperability in the IT industry. The core topics of standardization and certification are continued in the newly founding forum SCS-Standards to protect these values." explains Peter Ganter, chairman of the OSBA.

14 strong partners engage

"SCS needs to be advanced even without public subsidies. If we manage to improve the market conditions and create offerings from various cloud service providers that are interoperable and federatable thanks to common standards, this will have beneficial effects on the German and European cloud economy overall and will lead to long-term success. This is the reason for our members to invest time and money." comments Marius Feldmann, COO of Cloud&Heat, chairman of ALASCA e.V. and one of the two interim chairs of the forum.

Up to now, 14 companies have collected an annual budget of 257,000 Euros. Their engagement goes beyond the financial support: They are supporting the SCS ideas and the common standards. The founding members thus far are (in alphabetical order):

- artcodix GmbH
- B1-Systems GmbH



SCS Questions?

<https://scs.community/>

<https://docs.scs.community/>

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

