

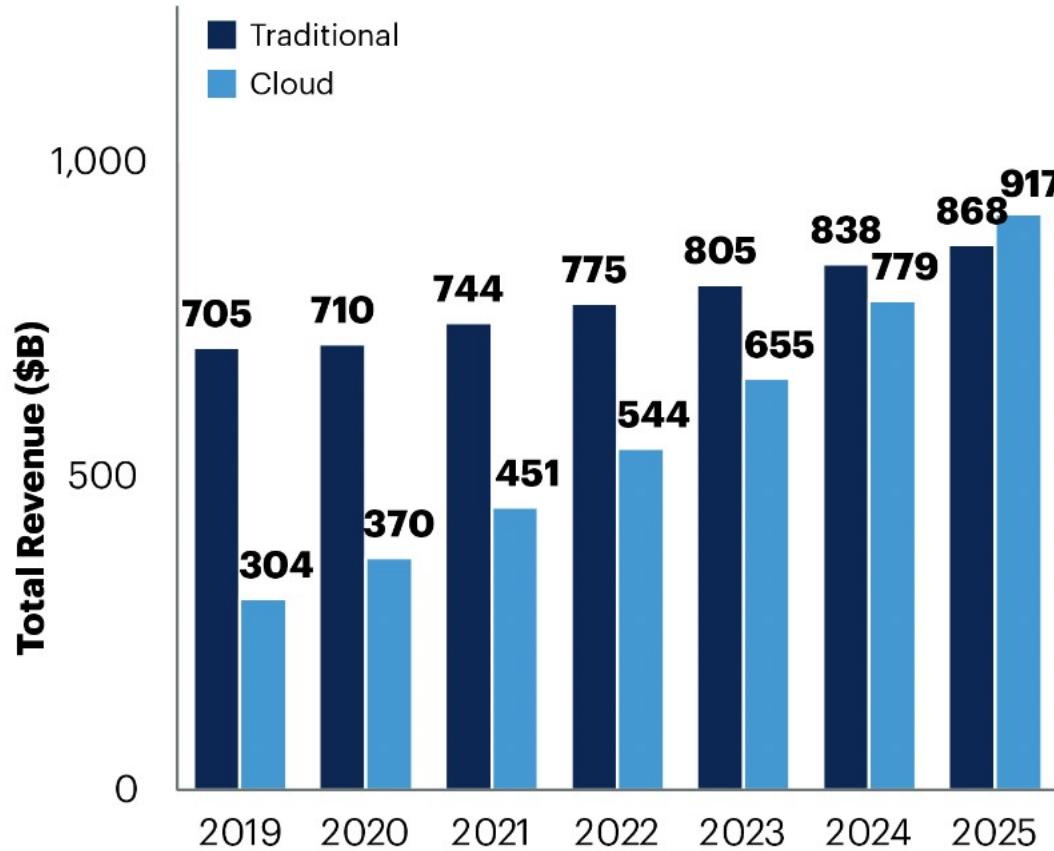


Geowebtalk 3. Juli 2024

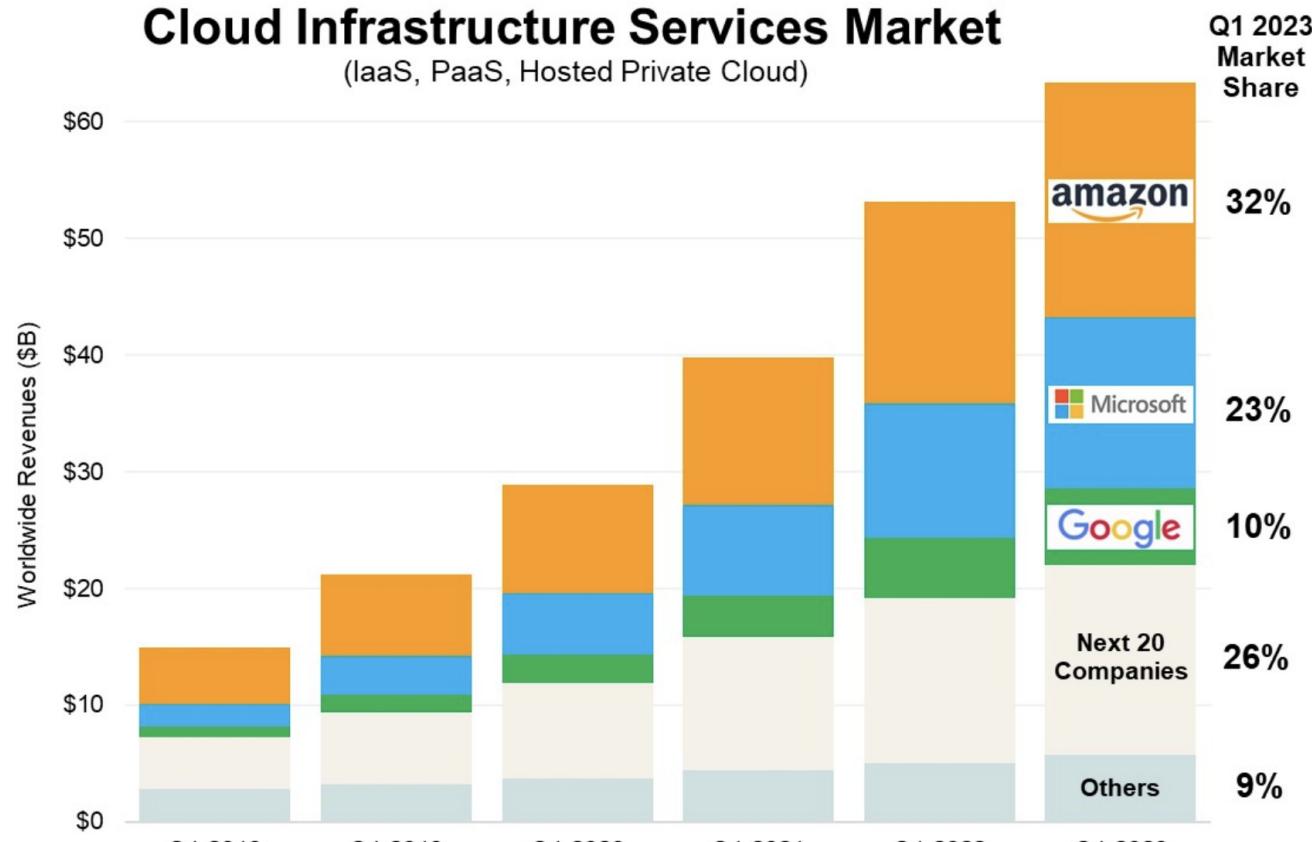
Manuela Urban

# Sovereign Cloud Stack: Digitale Souveränität in der Cloud verwirklichen

# "Cloud-Shift": Die Bedeutung des Cloud-Marktes



Quelle: Gartner 2022



Source: Synergy Research Group

# Digital Value Creation & Market Power

Die Top100 größten börsennotierten Unternehmen der Welt

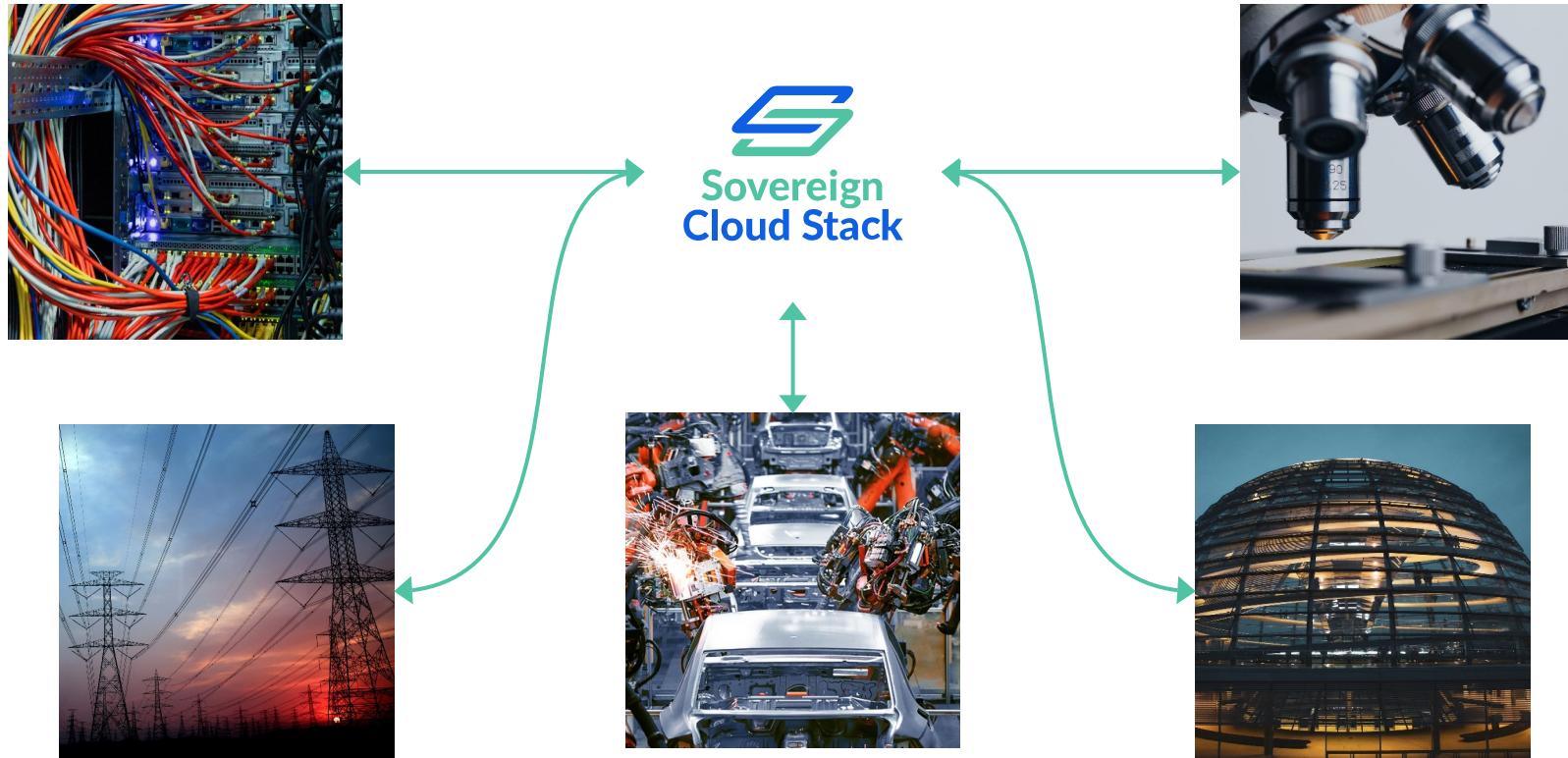
Nach Marktkapitalisierung

By comparison (Market Cap):  
GER 2,2 Bio. EUR (2023)

	Name	Land 	Umsatz (EUR)	Gewinn (EUR)	↓ Market Cap (EUR)
# 1	 Microsoft Corp. Registered Shares DL-,00000625		192,4 Mrd.	65,7 Mrd.	3,0 Bio.
# 2	 Apple		355,6 Mrd.	90,0 Mrd.	2,7 Bio.
# 3	 Alphabet Inc. Reg. Shs Cl. A DL-,001		282,5 Mrd.	67,9 Mrd.	1,9 Bio.
# 4	 Amazon.com		533,2 Mrd.	28,2 Mrd.	1,8 Bio.
# 5	 Meta Platforms Inc. Reg.Shares Cl.A DL-,000006		125,1 Mrd.	36,3 Mrd.	1,0 Bio.

Source: Finanzen 100, June 2024

# Sovereign Cloud Stack: Ein Open-Source-Ökosystem für die sektorübergreifende Zusammenarbeit zum Nutzen aller

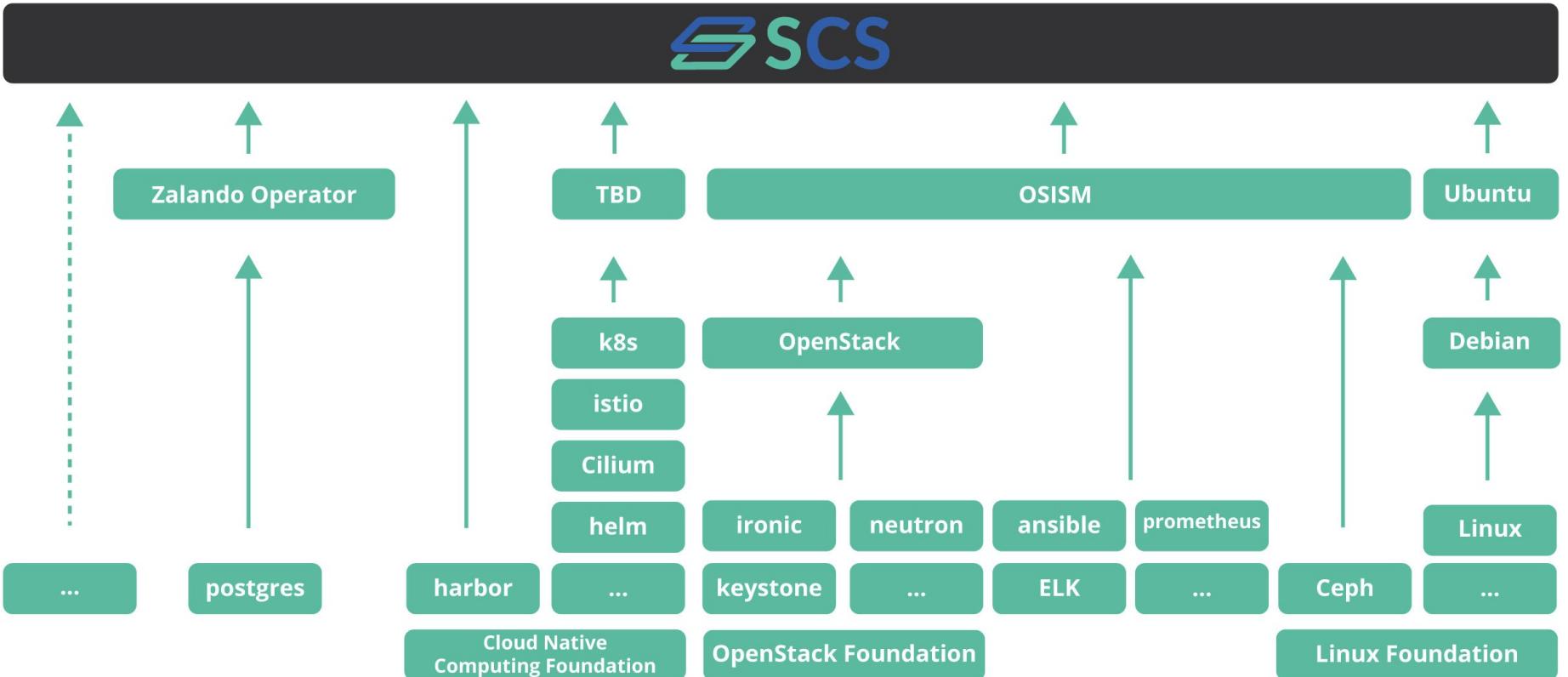


# Sovereign Cloud Stack

...eine Technologie,  
entwickelt, standardisiert  
und betrieben von vielen.



# SCS integriert und ergänzt bewährt Open-Source-Bausteine



# Open Knowledge



Standards For Operators For Contributors Community FAQ

[GitHub](#)



Search

## 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 5. 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.

### 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.

# Offene, zertifizierbare Standards

- ✓ Interoperabilität
- ✓ Portabilität
- ✓ kein Vendor-Lockin
- ✓ Skalierung
- ✓ einfache Zusammenarbeit von CSPs, Technology Providers, Service Companies, Software Vendors
- ✓ SaaS-Anbieter können plattformunabhängige Dienste entwickeln und anbieten

standards / Standards / ↑ Top

scs-0001-v1-sovereign-cloud-standards.md	Extend scs-0003: more context and process (resolves issues/#...	2 months ago
scs-0002-v1-standards-docs-org.md	Add markdown linter and link validator (#254)	8 months ago
scs-0002-v2-standards-docs-org.md	Fix/move scs 0002 to standards (#333)	3 months ago
scs-0003-v1-sovereign-cloud-standards-yaml....	Added classification field to the check tool descriptor (#365)	3 hours ago
scs-0100-v1-flavor-naming.md	Relocated flavor-naming.md to the proper position (#315)	5 months ago
scs-0100-v2-flavor-naming.md	Relocated flavor-naming.md to the proper position (#315)	5 months ago
scs-0100-v3-flavor-naming.md	Decouple standard flavors from flavor naming (#319)	2 months ago
scs-0101-v1-entropy.md	Revision of scs-0101-v1-entropy (#297)	5 months ago
scs-0102-v1-image-metadata.md	Update scs-0102-v1-image-metadata.md (#368)	last week
scs-0103-v1-s	<b>SCS compatible clouds</b>	
scs-0104-v1-s	This is a list of clouds that we test on a nightly basis against our <code>scs-compatible</code> certification level.	
scs-0110-v1-s		
scs-0111-v1-v		
scs-0210-v1-k		
scs-0211-v1-k		

**SCS compatible clouds**

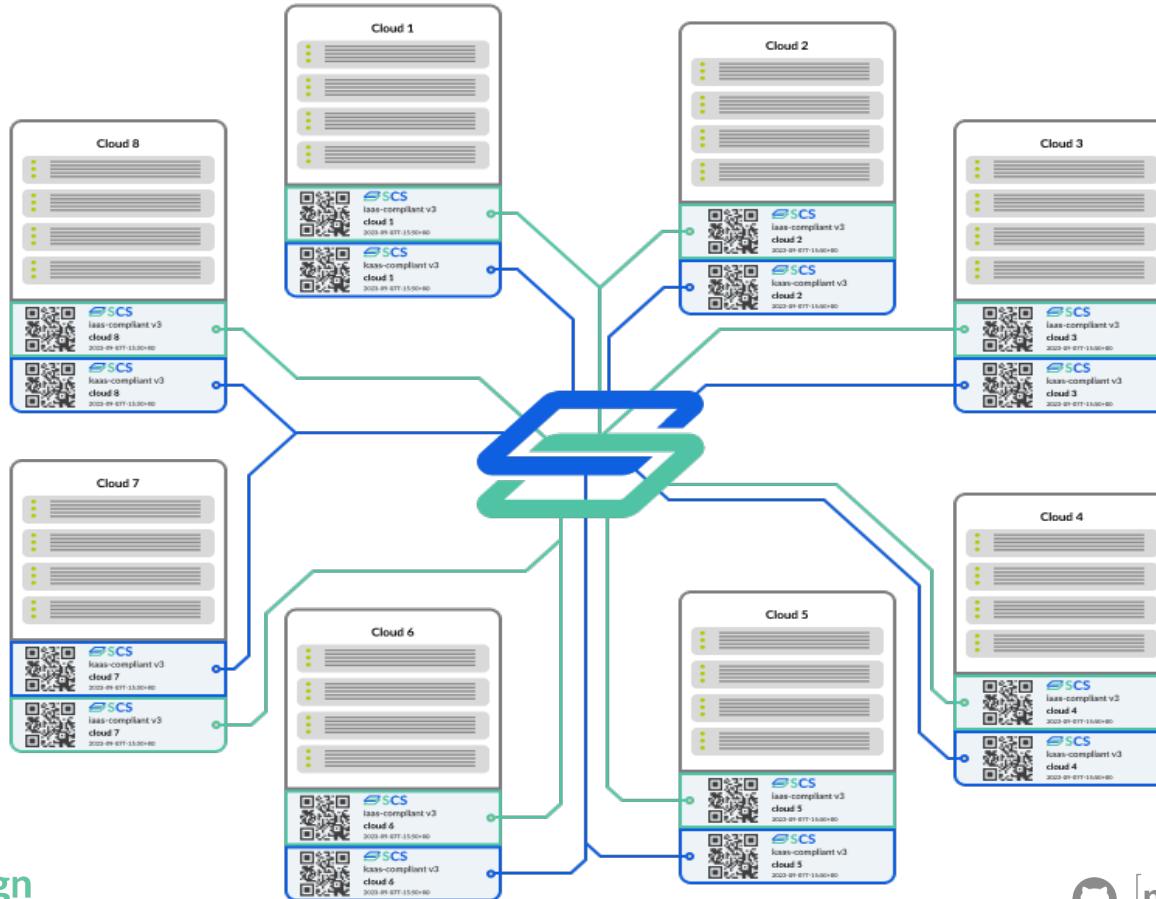
This is a list of clouds that we test on a nightly basis against our `scs-compatible` certification level.

Name	Description	Operator	IaaS Compliance Check	HealthMon
gx-scs	Dev environment provided for SCS & GAIA-X context	plusserver GmbH	<span>compliant</span> <span>passing</span>	HM
pluscloud open - prod1	Public cloud for customers	plusserver GmbH	<span>compliant</span> <span>passing</span>	HM
pluscloud open - prod2	Public cloud for customers	plusserver GmbH	<span>compliant</span> <span>passing</span>	HM
Wavestack	Public cloud for customers	noris network AG/Wavecon GmbH	<span>compliant</span> <span>passing</span>	HM
REGIO.cloud	Public cloud for customers	OSISM GmbH	<span>compliant</span> <span>passing</span>	Dashboard

# Entdecken Sie die Cloud ...

... auf der Nutzer mühelos zwischen  
verschiedenen Anbietern wechseln können.

# Föderierte Clouds: Ein virtueller Hyperscaler!



# SCS Deliverables



1

Zertifizierbare Standards



2

Modulare OS-Referenz-  
Implementierung



3

Open Knowledge

# Cloud-Angebote auf Basis von SCS





>  S Smarte.Land.Regionen 

S SopraSteria

Sovereign Cloud Stack

 Eine Plattform — standardisiert, entwickelt und betrieben von Vielen.  
Sovereign Cloud Stack (SCS) ist ein vom BMWK gefördertes Projekt der OSB Alliance e.V.  
SCS stellt Standards, Software und Wissen für Cloudinfra bereit. <https://scs.community/>

 S Stadt Detmold 

> ●  Stadt Soest

8- Stadt Wolfsburg

This is the official group of the city of Wolfsburg, Germany. Here you can find the open source projects that the city is working on or supporting.

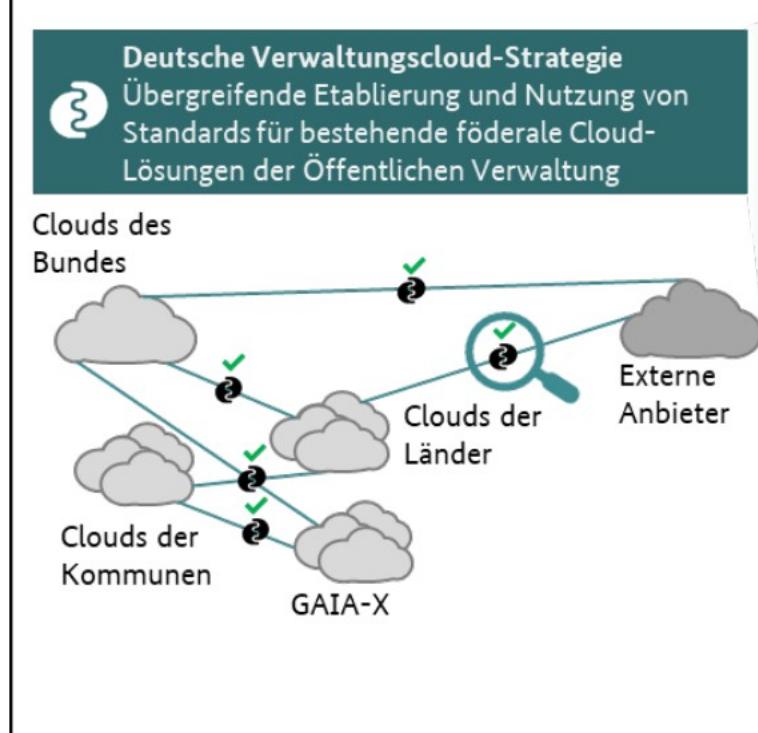
Testgruppe

Thüringer Landesverwaltung 

# Proof of Concept mit dem ZenDiS:



# SCS ist an der Entwicklung der Deutschen Verwaltungscloud (DVC) beteiligt.



## 🔍 Bereiche zur Standardisierung föderaler Cloud-Lösungen

### 1 Entwicklung und Entwicklungsplattform

Plattformen, Prozesse und Architekturvorgaben zur Entwicklung von Anwendungen

### 2 Anwendungsbereitstellung und -management

Bereitstellung und Betreuung von Anwendungen über gesamten Lebenszyklus

### 3 Code Repository

Verwaltungsumgebung zur Versionierung von Anwendungs-Code

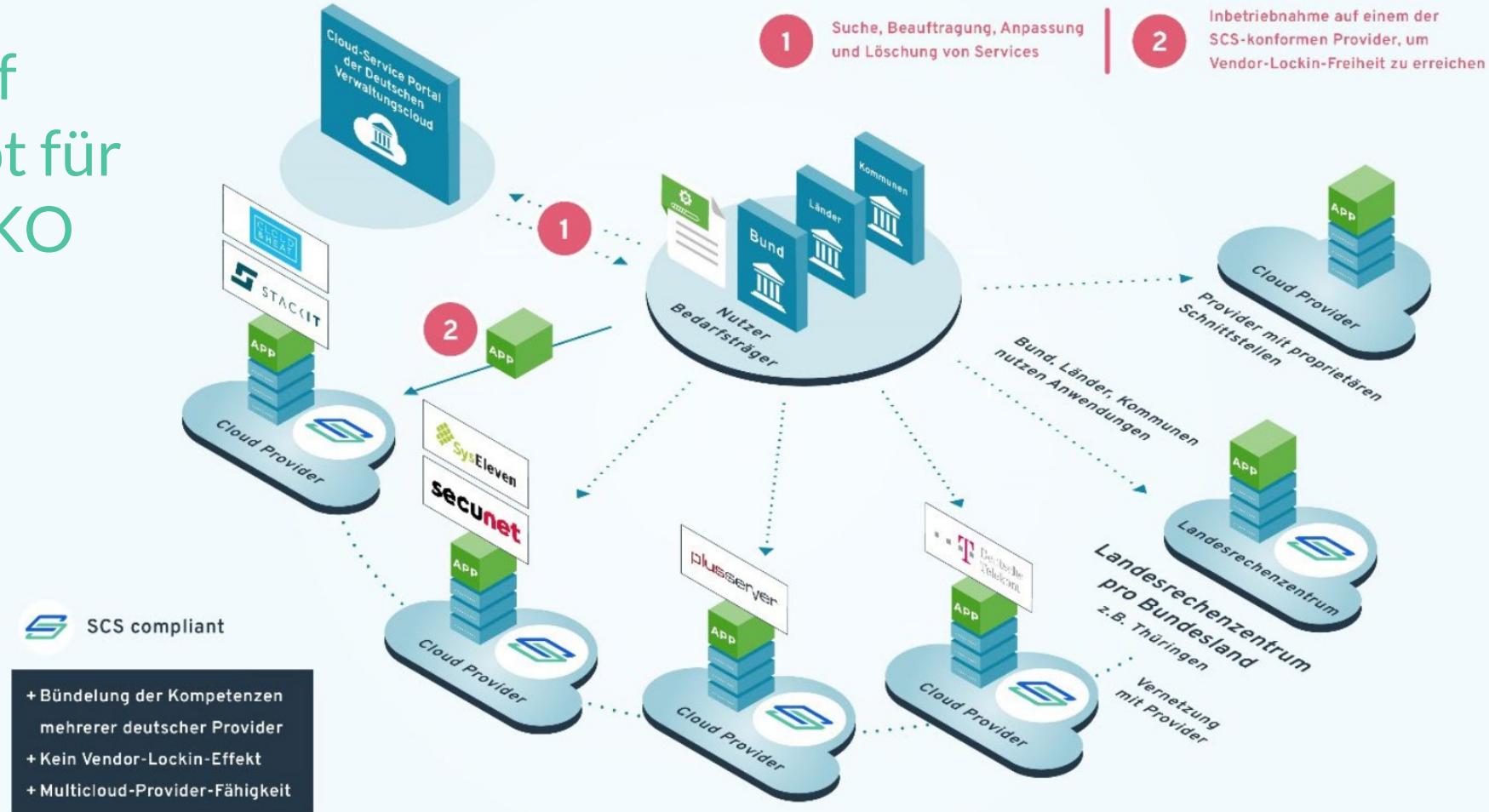
### 4 Infrastruktur-Service und technologischer Stack

Hard- und Software zur Erbringung von IT-Leistungen

### 5 Betriebsstandards und Betriebsmodell

Zusammenarbeit IT-Dienstleister/Service-Bereitstellung

# Proof of Concept für die FITKO



# SH setzt auf SCS im Cloud-Computing

leswig-Holstein. Der echte Norden.

19



SCS Summit  
14.5.2024  
Berlin

# BayernCloud Schule

Die Plattform für eine moderne digitale Bildung

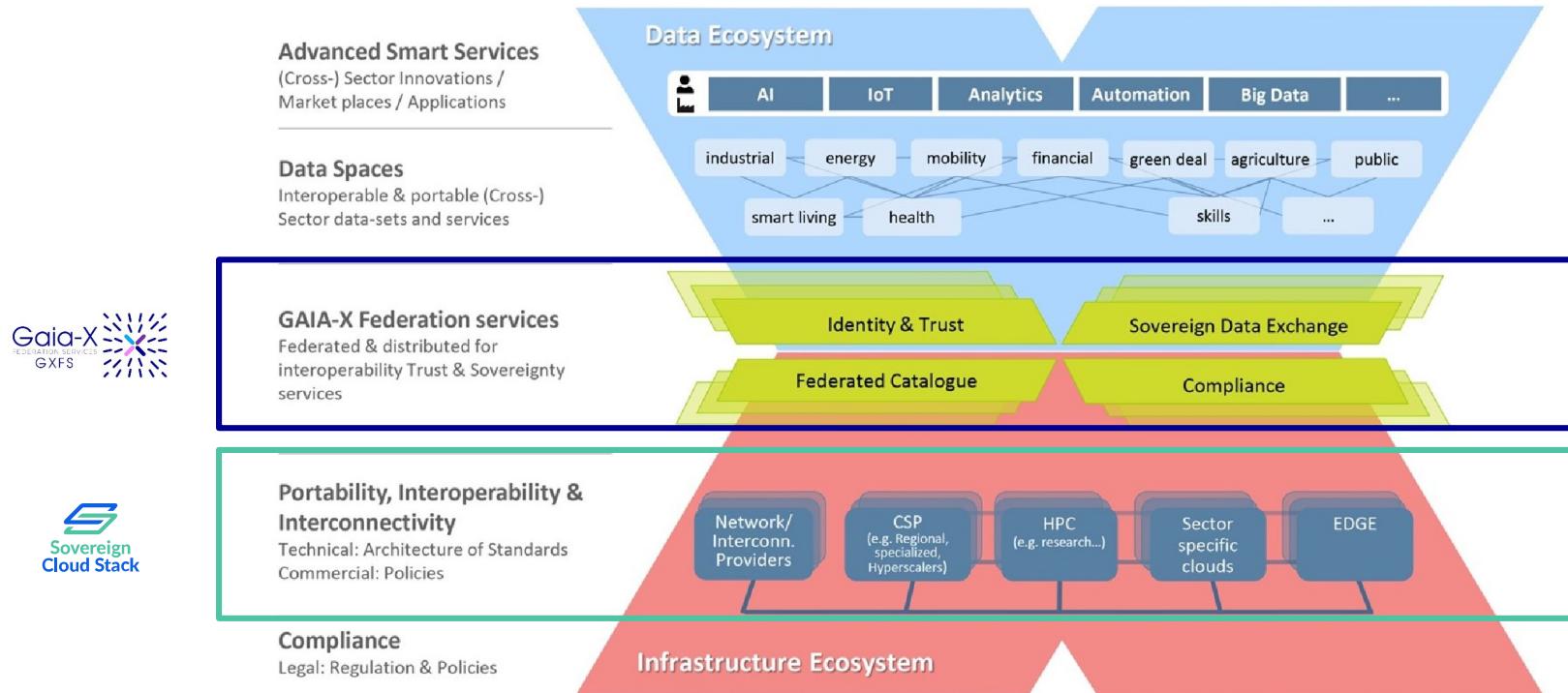
→ Informationen für Schulleitungen zur Freischaltung



...läuft auf SCS-Infrastruktur.

*powered by* **plusserver**

# SCS liefert Infrastrukturschicht für Gaia-X Federation Services



# SCS beteiligt sich an GovStack

GovStack harnesses the power of a global network and is led by:



digital  
impact  
alliance



## GovExchange

We offer a platform to research the market of digital services and find...

[Learn more](#)



## GovSpecs

We work with governments to identify real-life scenarios for digital...

[Learn more](#)



## GovTest

We provide an open demonstration environment for...

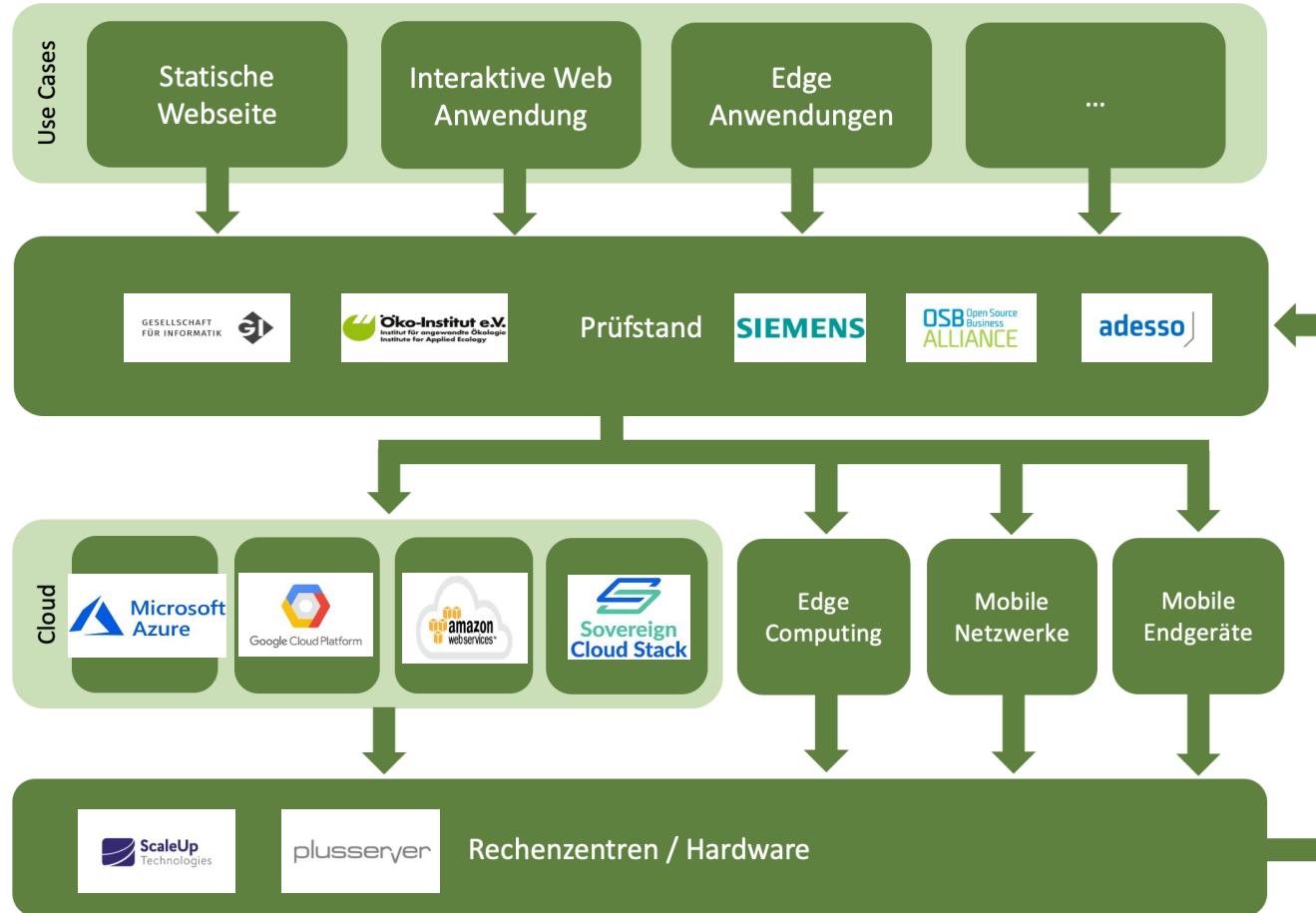
[Learn more](#)



## GovLearn

We collaborate to provide capacity building, trainings, and support designing...

[Learn more](#)



Gefördert durch:



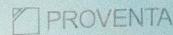
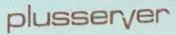
aufgrund eines Beschlusses  
des Deutschen Bundestages



# Herzlich willkommen zum 2. Sovereign Cloud Stack Summit 14. Mai 2024 in Berlin

<https://www.youtube.com/@sovereigncloudstack>

Programme and presentations (in German only):  
<https://scs.community/de/summit2024/>



Ihr führender deutscher  
Cloud Provider mit der  
Plattform für die Digitalisierung  
„Made in Germany“

- Souveräne Cloud-Lösungen
- DSGVO-konforme Datenhaltung
- Zertifizierte plusserver-Rechenzentren in Deutschland
- 24/7-Support & Beratung



— An **OSB ALLIANCE** project —



<https://scs.community>

Supported by:



Federal Ministry  
for Economic Affairs  
and Climate Action



gaia-x

on the basis of a decision  
by the German Bundestag



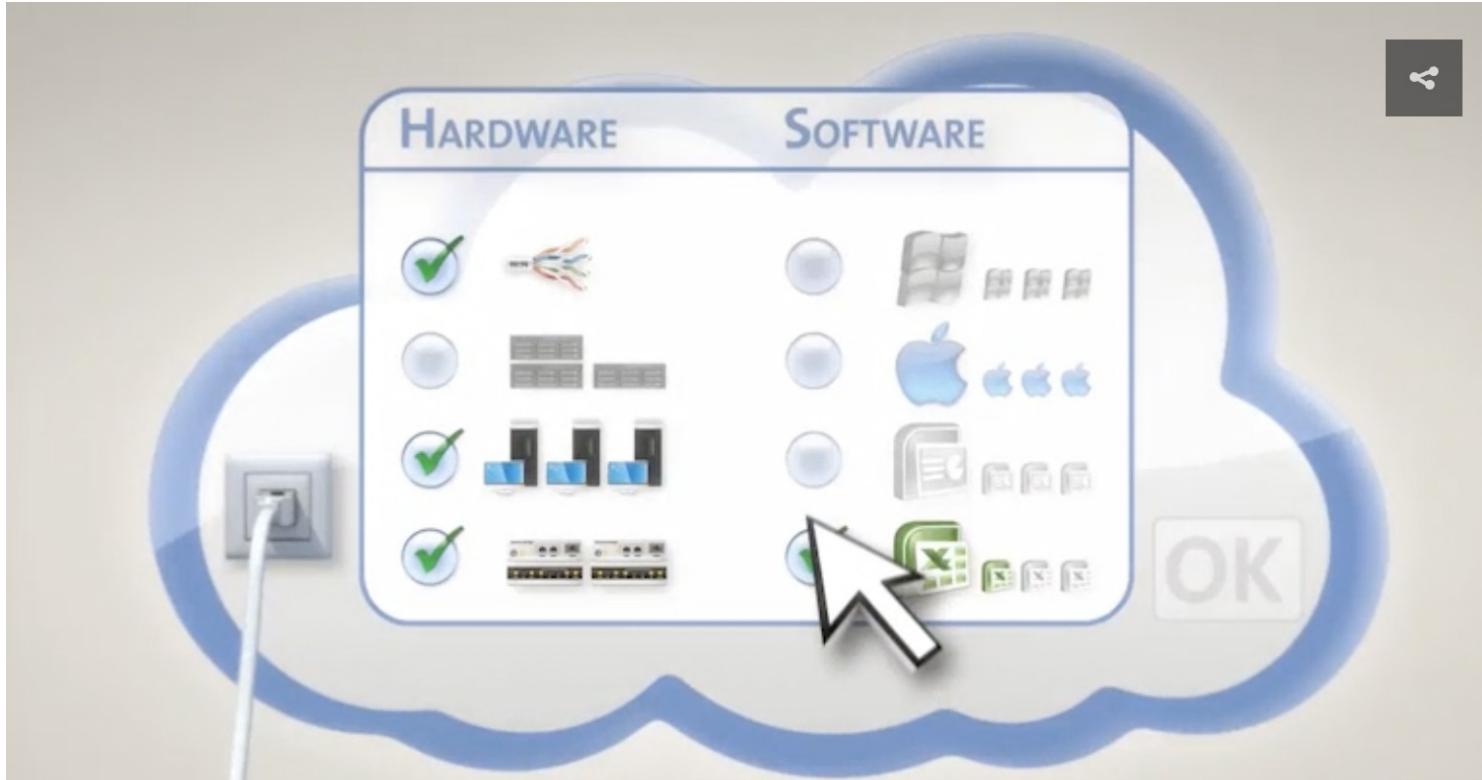
A large, sharp mountain peak, likely Mount Everest, rises from a sea of white clouds against a clear blue sky. The mountain's slopes are rugged and rocky, with patches of snow and ice. The perspective is from a lower vantage point, looking up at the peak.

<https://scs.community>

One platform – standardised, built and operated by many.

# Addendum

# Der Traum von der Wolke...



Quelle: Bundesministerium für Wirtschaft und Technologie 2010

# ...und die Realität

- Über 80 % der Unternehmen in Europa fühlen sich technologisch abhängig.<sup>1</sup>
- Amazon, Microsoft, Alphabet (Google) beherrschen den Markt.<sup>2</sup>
- Vendor lock-in<sup>3</sup>
- Inkompatibilität bei Infrastrukturen, Plattformen und Applikationen
- US Foreign Intelligence Surveillance Act (FISA)  EU DSGVO
- Dynamische, verteilte Plattformen sind hochkomplex im Betrieb.
- Fachkräftemangel

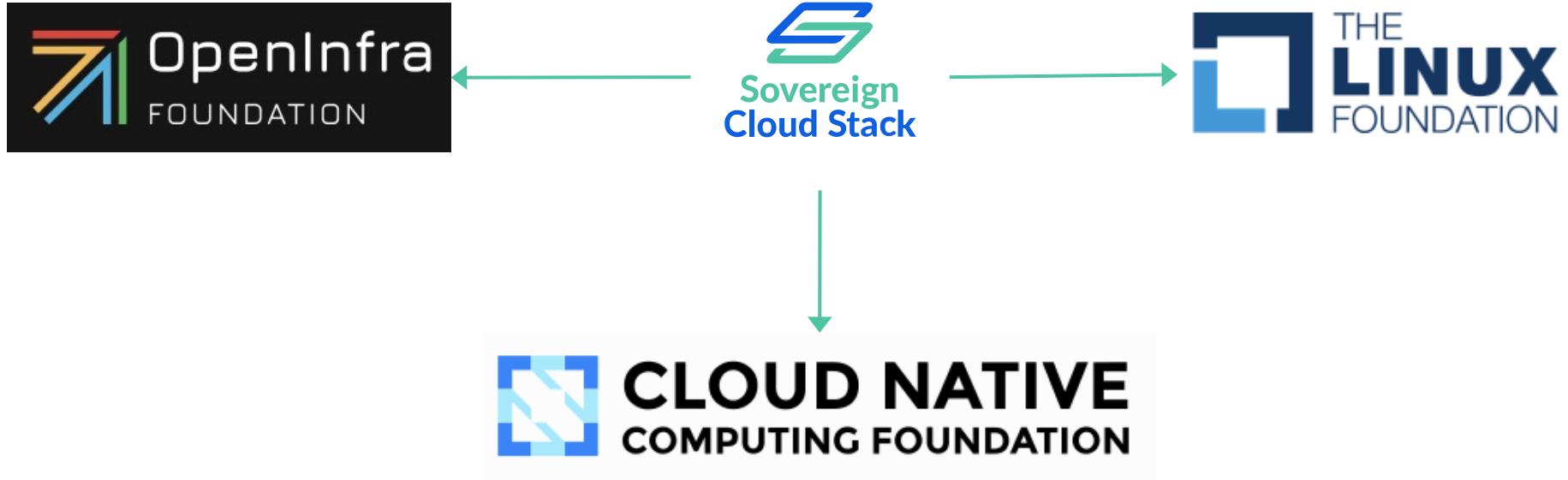
1 ZEW – Leibniz-Zentrum für Europäische Wirtschaftsforschung; „Schwerpunktstudie Digitale Souveränität 2021“ Hrsg.: Bundesministerium für Wirtschaft und Energie (Oktober 2021)

2 <https://www.srgresearch.com/articles/huge-cloud-market-is-still-growing-at-34-per-year-amazon-microsoft-and-google-now-account-for-65-of-all-cloud-revenues>

3 [https://www.cio.bund.de/SharedDocs/downloads/Webs/CIO/DE/digitale-loesungen/marktanalyse-reduzierung-abhaengigkeit-software-anbieter.pdf?\\_\\_blob=publicationFile&v=1](https://www.cio.bund.de/SharedDocs/downloads/Webs/CIO/DE/digitale-loesungen/marktanalyse-reduzierung-abhaengigkeit-software-anbieter.pdf?__blob=publicationFile&v=1)



# Upstream first!





# OPEN OPERATIONS MANIFESTO

Building a community of practice and transparency for operations

<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.

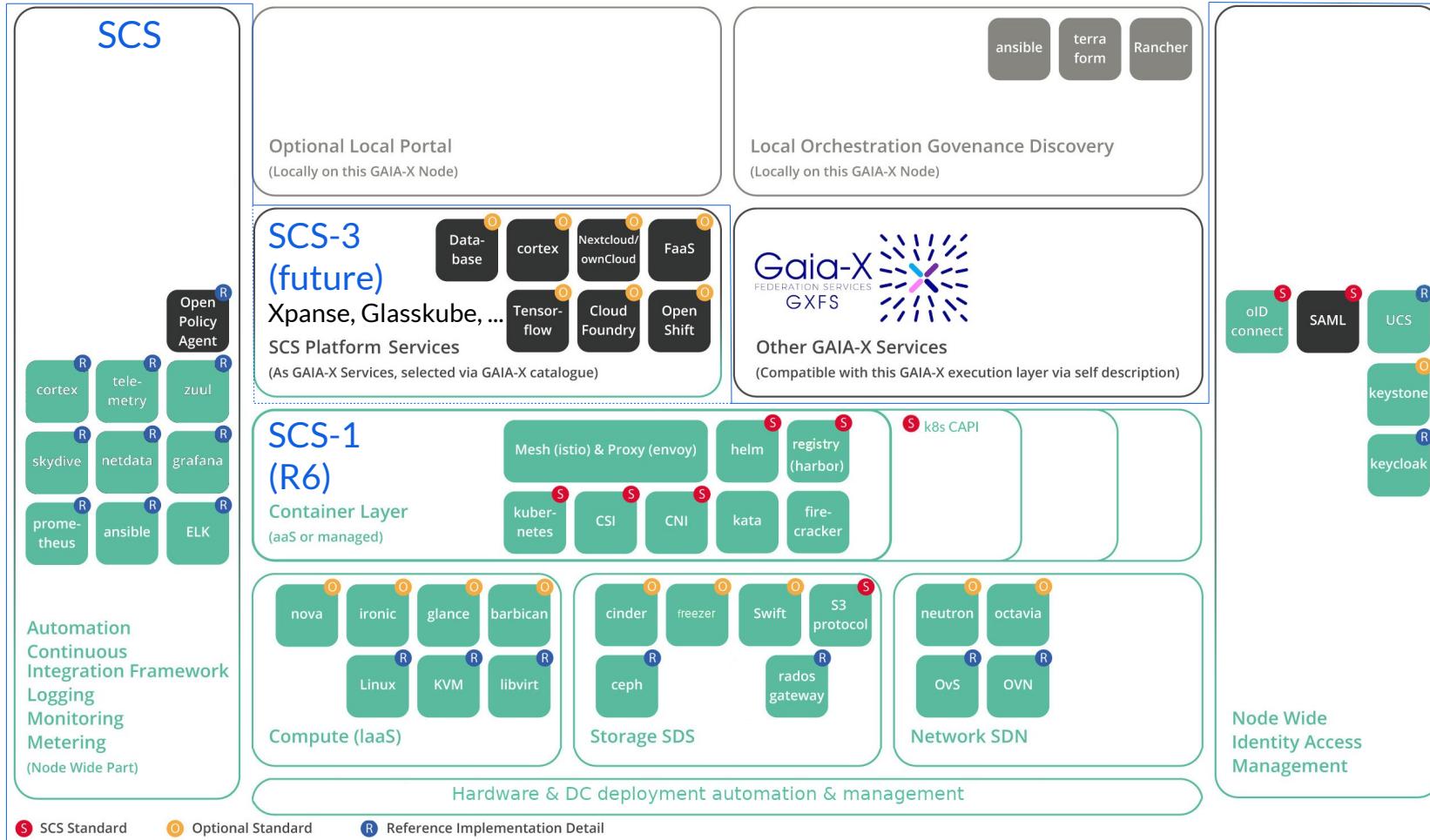
## We're transparent about our incidents

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 Reference Architecture (current status)



# SCS Open Development in Practice

< > today edit

18 – 22 Sep 2023

day week month

	Mon 18/09	Tue 19/09	Wed 20/09	Thu 21/09	Fri 22/09
all-day					
09					
9:30					
10					
10:30			10:05 - 10:55 GMT+2 Team IaaS Sprint Review/Planning and Refinement		
11	11:05 - 11:55 GMT+2 SIG Documentation			10:35 - 11:25 GMT+2 Team Container Sprint Review/Planning and Refinement	
11:30			11:35 - 12:25 GMT+2 Team IAM Sprint Review/Planning and Refinement		
12					
12:30					
13					
13:30					
14	14:05 - 14:55 GMT+2 SCS Product Board			14:05 - 14:55 GMT+2 SIG Standardization/Certification	
14:30					
15	15:05 - 15:55 GMT+2 Blocker: SCS Team Overflow/Replace 15:05 - 15:55 GMT+2 Lean SCS Operator Overflow/Replace			15:05 - 15:45 GMT+2 Weekly SCS Community Meeting	
15:30		Coffee			

# SCS: Realize Digital Sovereignty



Competence (esp. Operations)

Ability to shape technology

Choice / Switching / Interoperability

Legal Compliance (GDPR ...)



<https://rdcu.be/cWdBJ>

# SCS Certification

## Levels of digital sovereignty

4: Operational transparency and knowledge and skills available

3: Transparent technology and capability to contribute & shape

2: Freedom of choice (many providers as well as on-prem), Interoperability, Portability

1: Legal compliance



## SCS certification levels

- 3: "**SCS-Sovereign**" – Ops/IAM Stacks "open" as well, transparency on monitoring, incidents, contributing to "Open Operations"  
(5x Open)
- 2: "**SCS-Open**" – SBOM for functional stack available, fully "open"  
(4x Open according OpenInfra Foundation)
- 1: "**SCS-Compatible**" – Technical compatibility, interoperable (Conformance tests pass: CNCF, OIF, SCS)
- 0: ENISA / Gaia-X labels / GDPR (no SCS certificate)



# Security by Design

## Using strong isolation for container clusters

- Different tenants receive their own Kubernetes clusters; by default, no cluster sharing happens
- Underlying VMs, network, storage are separated by strong virtualization barriers

## Private registry for users

- Make it easy for DevOps teams to enforce their own security vetting processes and control their supply chain
- Vulnerability scanning included in registry solution

## Daily patching supported

- The architecture is built for daily patching (or redeployment) without noticeable customer impact
- This creates a practice of keeping the systems up to date especially with respect to security patches

## Secure Operational practices

- Document updating, patching, security response, ... processes to help with secure operations

## Air gap mode supported

- Deploying and updating without internet connection possible
- Leveraging an internal registry and patch distribution mechanism (includes vulnerability scanning)

## Certification

- Budget for security certifications (BSI) with partners – SCS based PlusCloud Open achieved BSI C5 in Nov 2021
- Pen testing planned (and budget allocated)

## Supply chain security

- Work with community on further improving supply chain security (reproducible builds, scanning, ...)

## Confidential computing

- Work with intel (and AMD) on TDX / SVE enablement for additional protection



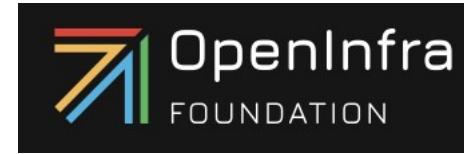
# SCS Open Source Health Check

<https://github.com/SovereignCloudStack/Docs/blob/main/Design-Docs/OSS-Health.md>

1. Really Open: Four Opens (Code, Development, Design, Community)
2. Maturity: Quality, Reviews, CI, Maintenance, Standards
3. Security: Supply Chain, Sec Response, SecTesting / PenTest
4. Activity: Adoption, Community, Ecosystem
5. Risk Assessment: Likelihood to fail? Replace? Fork?

# The Four Opens

1. Open Source
2. Open Design
3. Open Development
4. Open Community



*A fifth Open?*

5. Open Operations

# Zur Bedeutung von Open Source

EU-Studie: Open Source stärkt die Wirtschaft und die technologische Unabhängigkeit

FEATURED | VERBANDS-NEWS | 13. DEZEMBER 2021



<https://digital-strategy.ec.europa.eu/en/library/study-about-impact-open-source-software-and-hardware-technological-independence-competitiveness-and>

<https://www.acatech.de/publikation/open-source-i40-innovationstreiber/>



Geordert durch:



<https://scs.community>

aufgrund eines Beschlusses  
des Deutschen Bundestages



# SCS: Why thoroughly Open?

- Highly innovative
- Best possible quality
- Efficiency and reduced complexity
- Trust through transparency
- Digital sovereignty
- We believe that basic cloud technology and know-how should be common property.

