

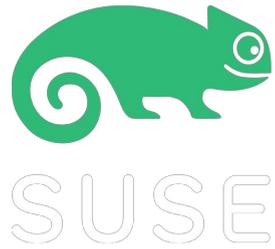
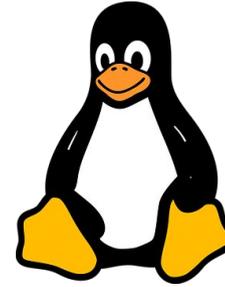
SCS 2024-08-18

# Sovereign Cloud Stack: Projektvorstellung mit einem ehrlichen Rückblick und spannendem Ausblick

Felix Kronlage-Dammers, Kurt Garloff  
[garloff@osb-alliance.com](mailto:garloff@osb-alliance.com)

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

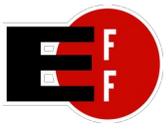
# Introducing myself ...



Supported by:



on the basis of a decision by the German Bundestag

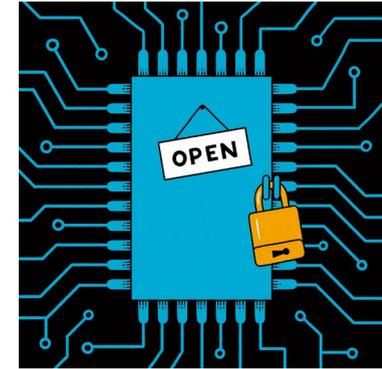


# Free & Open Src SW gives power to society

## 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

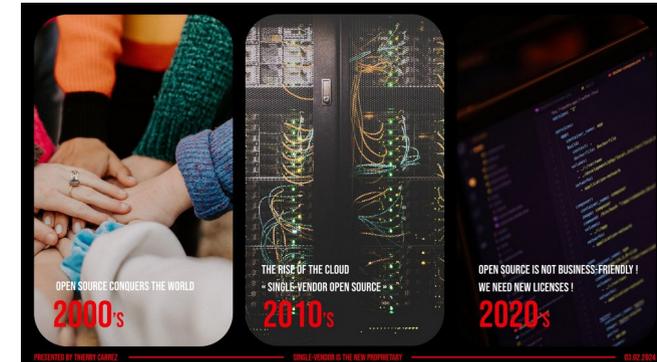




Luci Gutiérrez

# Everything really great?

- Open Washing
- Single-vendor OSS becomes proprietary
- Being embraced



# State of Infrastructure platforms



IBM **Cloud**



- 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



# Problems with IT platform dependencies

IT determines more and more of our possibilities in private life, industrial production, public administration

- **Innovation**
  - Can we implement great IT ideas at all layers?
- **Value-Creation**
  - Who can extract value by being the single provider in a value chain?
- **Dependencies**
  - Who has control over data, pricing, strategy, future availability?
- **Regulation**
  - Can we realistically implement our own rules (without killing our economy)?

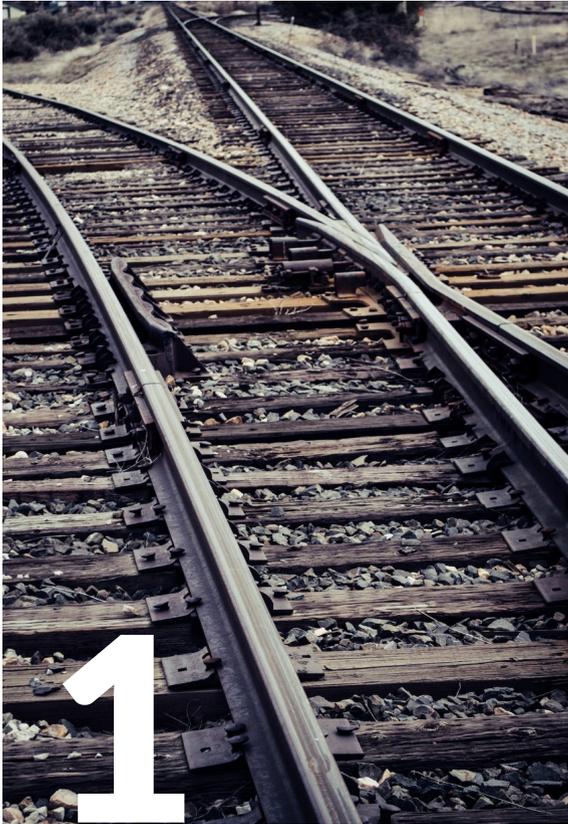
# We could do better ...

- **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.



# Sovereign Cloud Stack Deliverables



Certifiable Standards



Modular Open Source  
Reference Implementation



Operational Knowledge

# What is sovereignty?

## Levels of Digital Sovereignty

4: Operational Transparency and -  
knowledge available

3: Technological Transparency and  
ability to influence and innovate

2: Free provider choice (also after initial  
choice, in-and-out-sourcing  
(on-prem/public)

1: Following legal requirements (GDPR)

0: None

## SCS Levels of Certifications

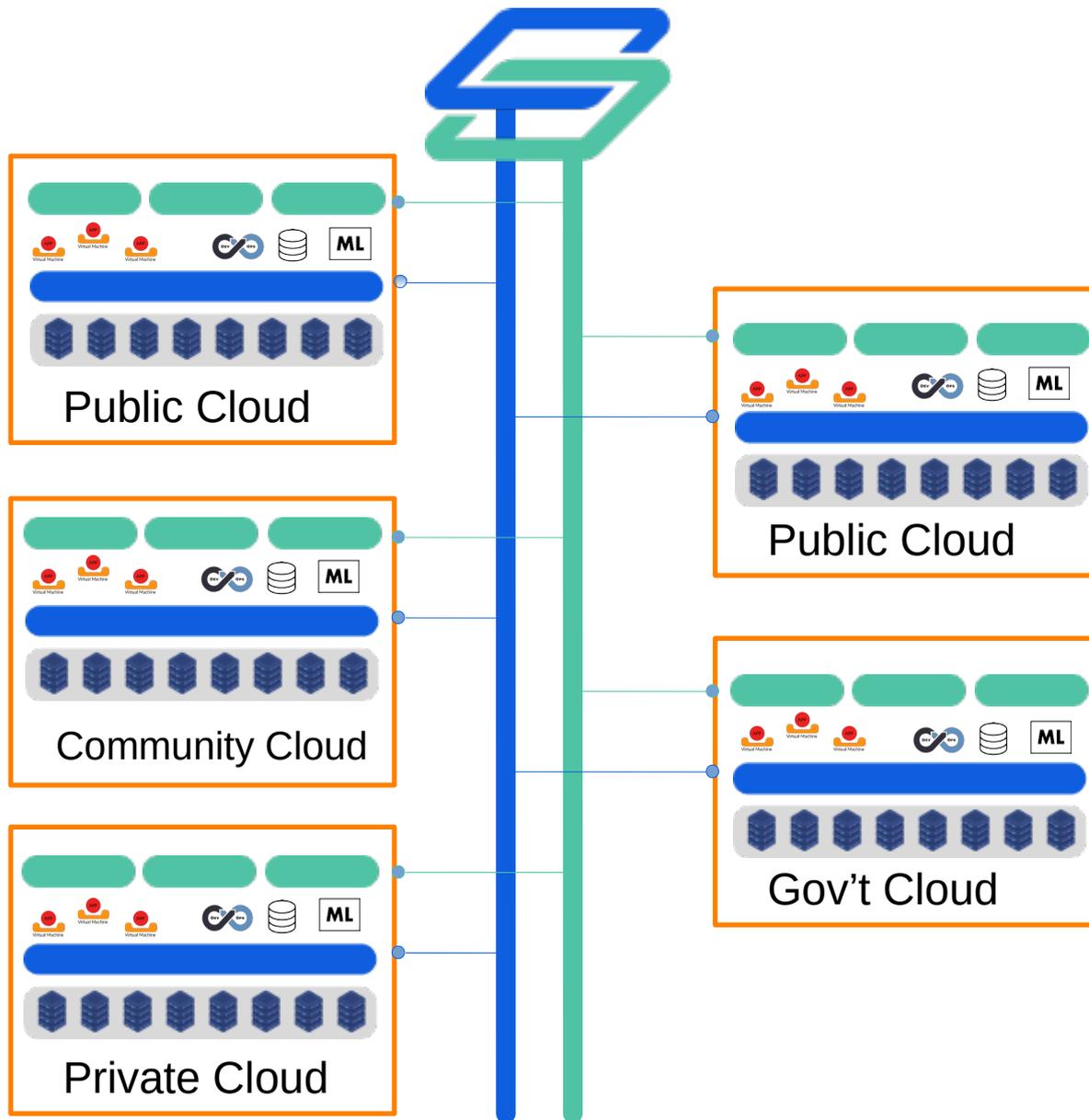
4: "SCS-sovereign" – Ops/IAM Module OSS too,  
Monitoring and Event Transparency, Contribution to  
Open Operations (5 x open)

3: "SCS-open" – SBOM of functional stack available  
and complete OSS (4 x open)

2: "SCS-compatible" – Technical compatibility  
(automated conformity tests: CNCF, OIF, SCS)

1: Defined and checked outside of SCS  
(rely on ENISA / Gaia-X labels / EU-CS)

# 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

# Existing public providers

← → ↻ https://docs.scs.community/standards/certification/overview

**SCS** Standards For Operators For Contributors Community FAQ GitHub Search

Introduction  
**Certification** ▾  
 Scopes and Versions >  
 Standards >

## Compliant cloud environments

This is a list of clouds that we test on a nightly basis against the certificate scope *SCS-compatible IaaS*.

Becoming certified  
 Compliant cloud environments

Name	Description	Operator	SCS-compatible IaaS Compliance	HealthMon
<a href="#">gx-scs</a>	Dev environment provided for SCS & GAIA-X context	plusserver GmbH	v4 failing	broken
<a href="#">pluscloud open</a> - prod1 - prod2 - prod3 - prod4	Public cloud for customers (4 regions)	plusserver GmbH	- prod1 v4 failing - prod2 v4 failing - prod3 v4 failing - prod4 v4 failing	HM1 HM2 HM3 HM4
<a href="#">Wavestack</a>	Public cloud for customers	noris network AG/ Wavecon GmbH	v4 failing	HM
<a href="#">REGIO.cloud</a>	Public cloud for customers	OSISM GmbH	v4 passing	broken
<a href="#">CNDS</a>	Public cloud for customers	artcodix GmbH	v4 passing	HM
<a href="#">aov.cloud</a>	Community cloud for customers	aov IT.Services GmbH	(soon)	HM
PoC WG-Cloud OSBA	Cloud PoC for FITKO (yaook-based)	Cloud&Heat Technologies GmbH	v4 passing	HM
PoC KDO	Cloud PoC for FITKO	KDO Service GmbH / OSISM GmbH	v4 failing	(soon)
<a href="#">sysleven</a> - dus2 - ham1	Public OpenStack Cloud (2 SCS regions)	SysEleven GmbH	- dus2 v4 failing - ham1 v4 failing	(soon) (soon)

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

Health Monitor dashboard: Public realtime monitoring of errors and performance

## **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.

# Technical architecture

## What we have built ...

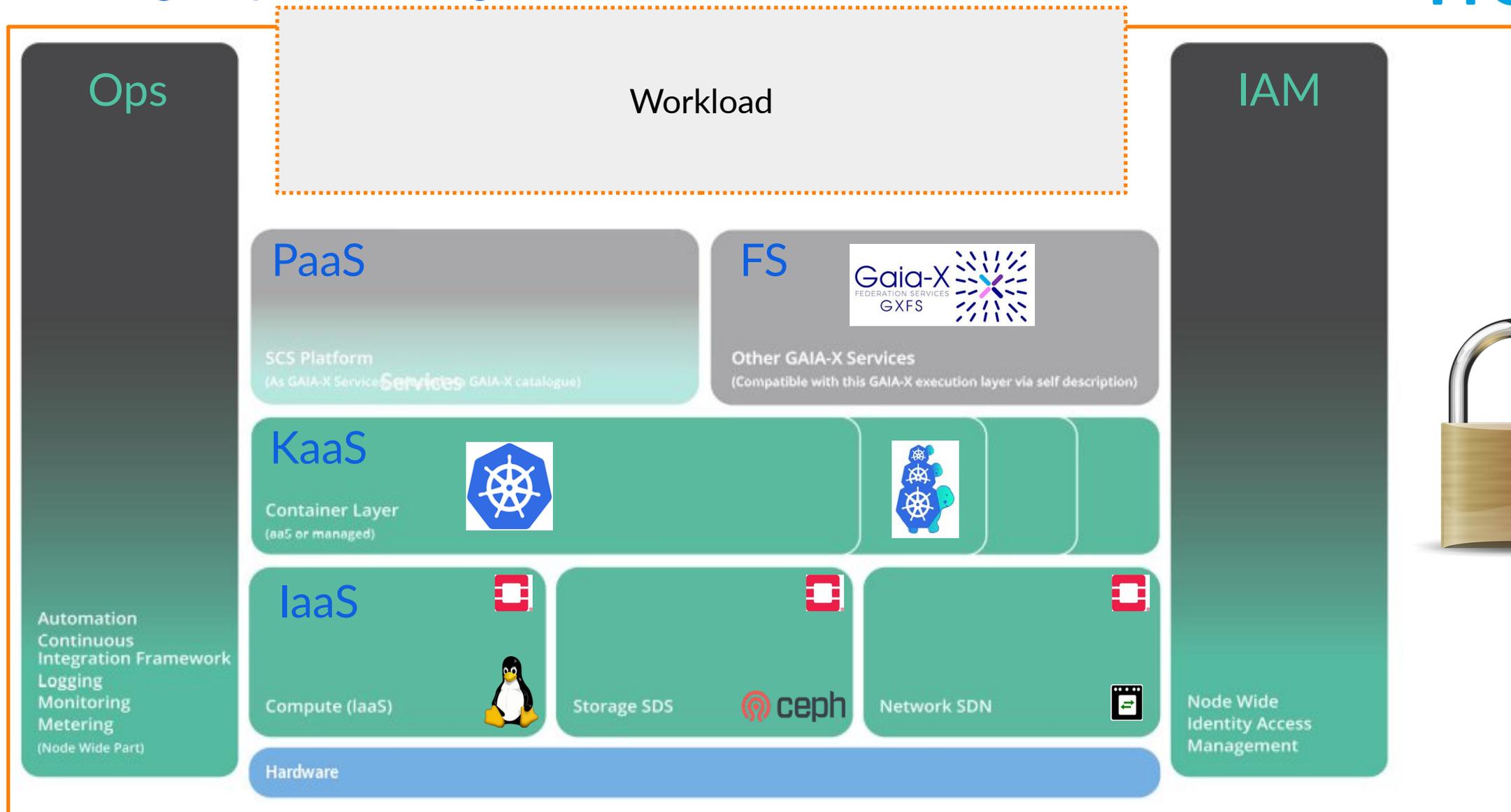
# Technical architecture

## Basic architecture decisions

- Build complete OSS stack on top of commodity HW
- Put Kubernetes on top of IaaS/Virtualization platform (on top of HW install automation / asset management)
  - On-demand k8s cluster creation and scaling
  - Secure isolation by virtualization technology
- Define IaaS and KaaS layers separately – can be used individually (but work well together)
- SW (Reference Implementation) & Standards go hand-in-hand
- Operational tooling part of the solution (covering all layers)  
Lifecycle Management, Monitoring, Alerting, Logging, CI
- Identity & Access Management with support for user federation (OIDC)
- Use existing OSS solutions and standards as much as possible and contribute back
- Create well-defined platform for well-integrated platform services by 3rd parties (collaborate with EF Xpanse, Glasskube) – option to standardize & implement some later (like building blocks)

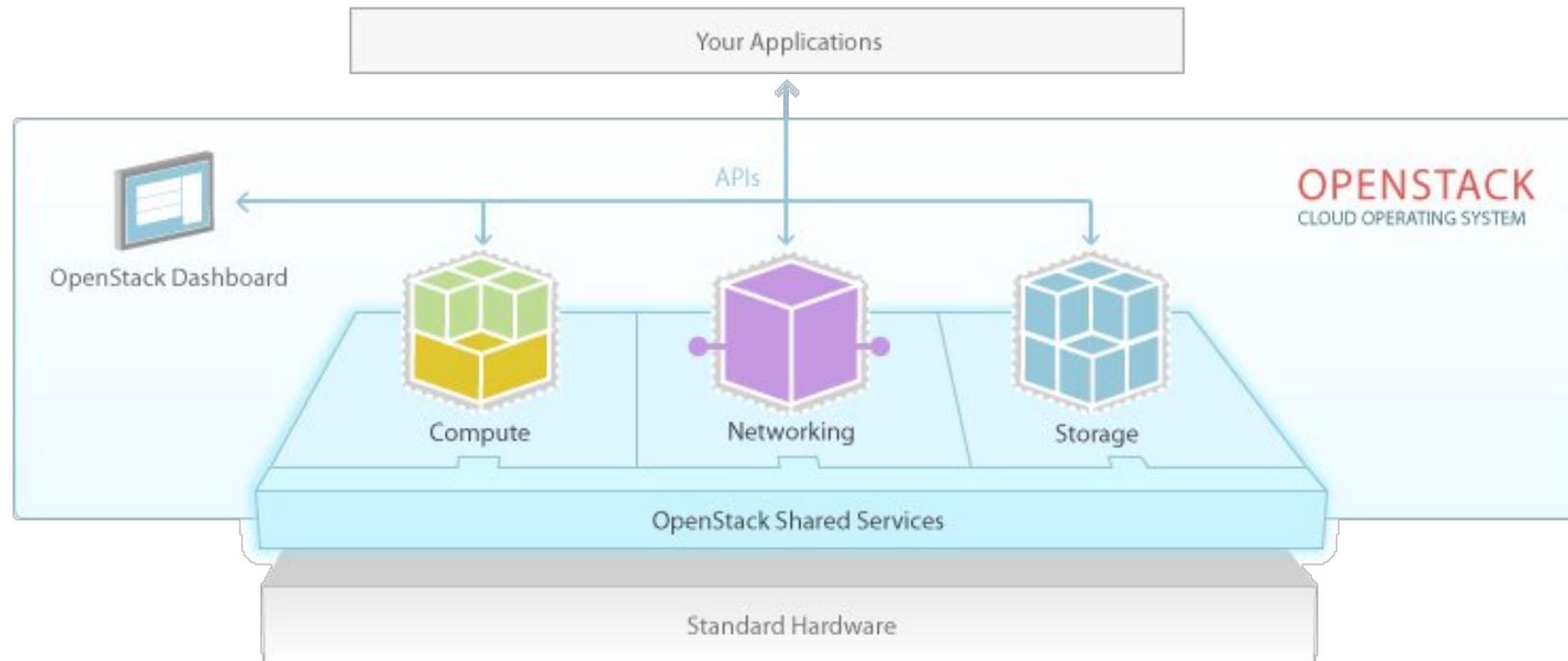
# SCS Architecture (Software/Ref.Impl.)

building it up from the ground

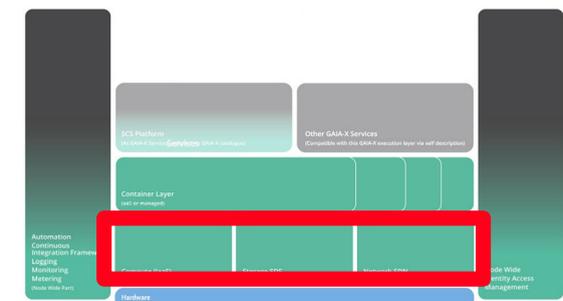


SCS Platform Services (PaaS) are planned  
 Hardware and Federation Services not part of SCS software  
 KaaS = Kubernetes as a Service

# Virtualization & IaaS

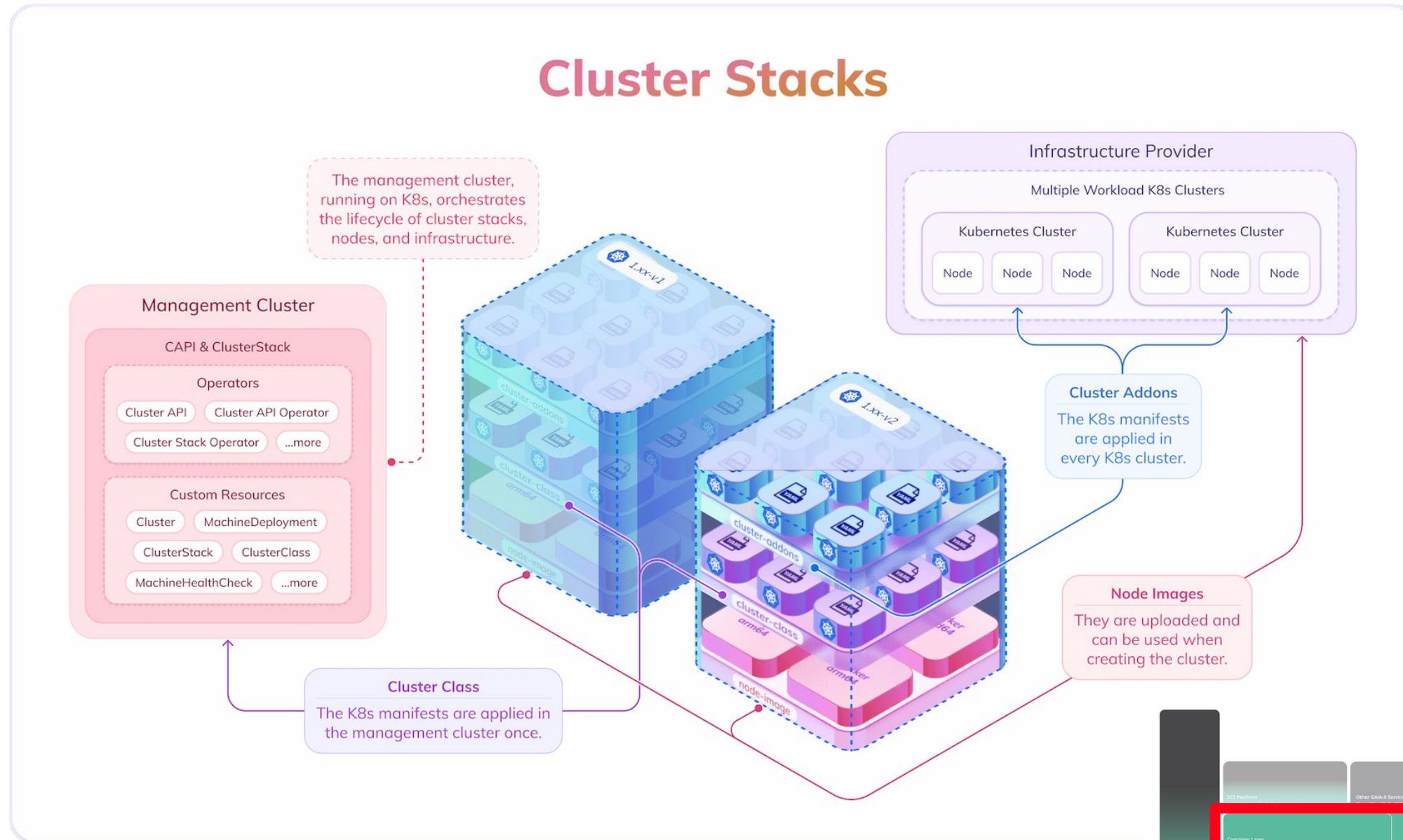


- Compute Virtualization: KVM (Linux)
- Storage SDS: ceph (incl. rados GW) – ceph-ansible / ceph-rook
- Network SDN: OvS + OVN
- ... orchestrated via OpenStack core services & APIs (deployed containerized with OSISM / kolla-ansible)

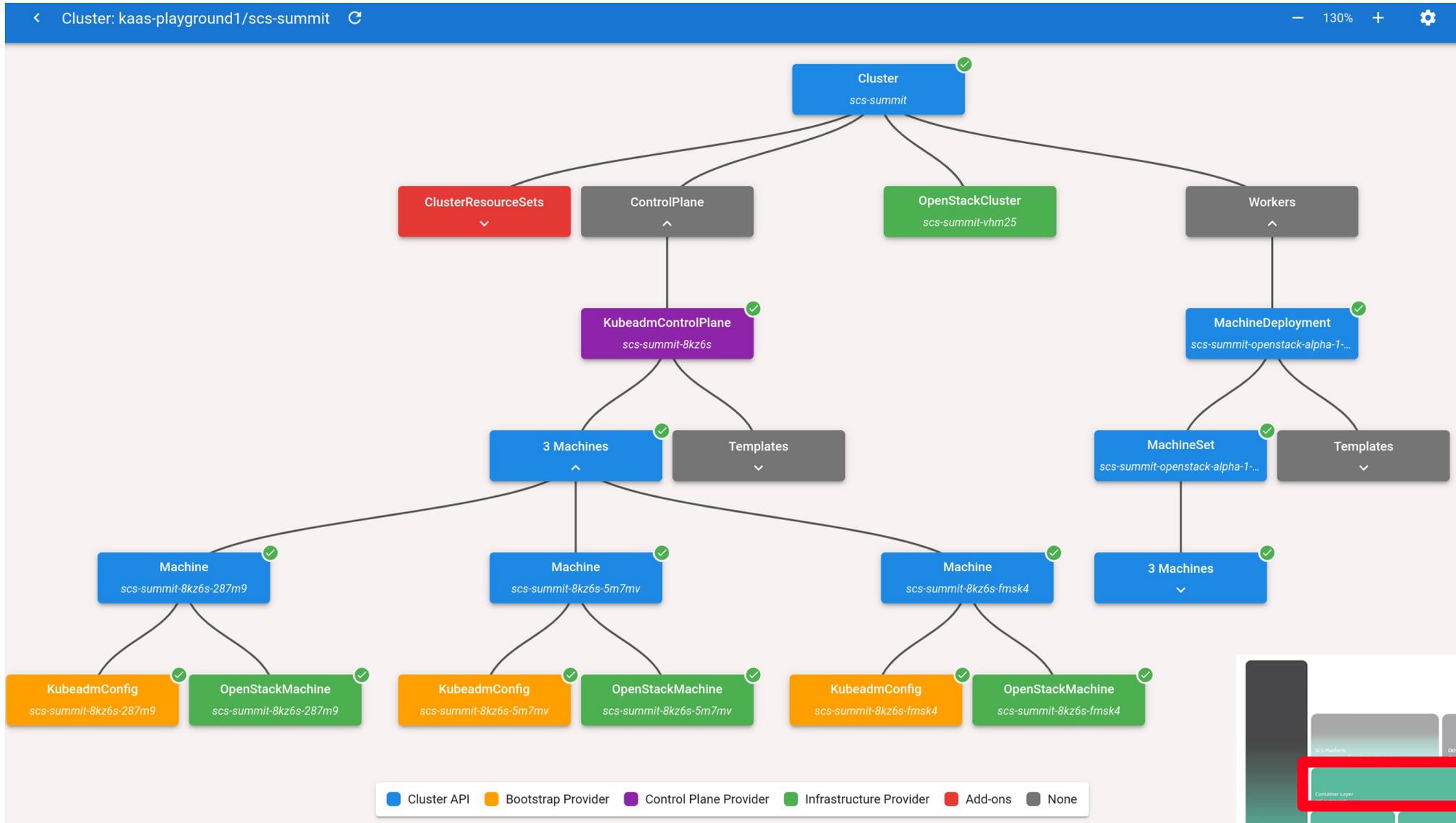


# Container layer

## Cluster Stacks



# Cluster in detail



# Kubernetes Node as Openstack Instance

Project ▼

API Access

Compute ▼

Overview

**Instances**

Images

Key Pairs

Server Groups

Volumes >

Network >

Orchestration >

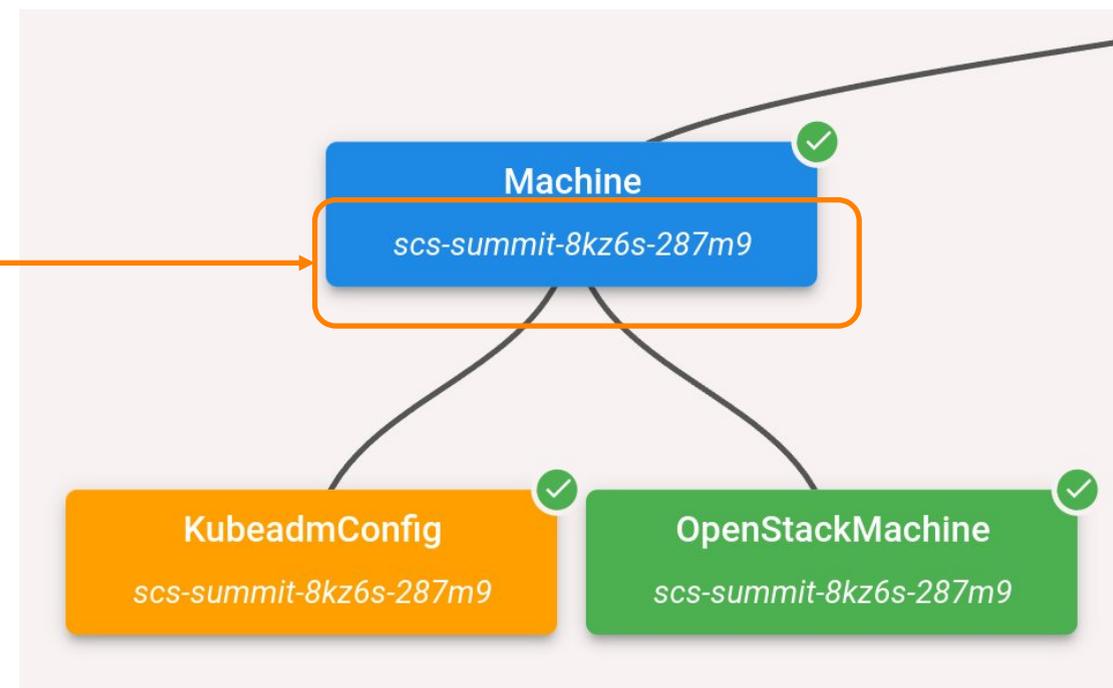
DNS >

Object Store >

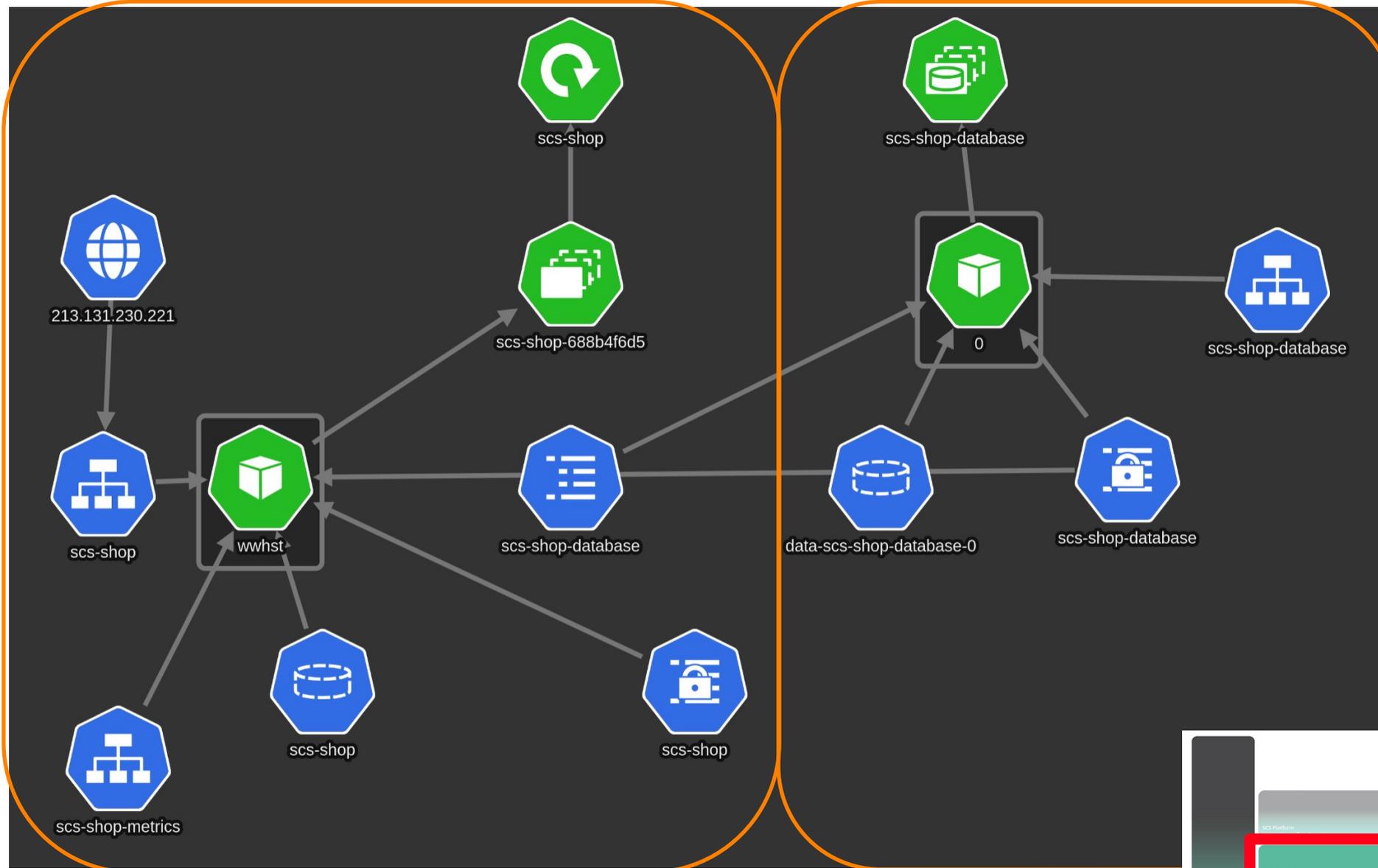
## Instances

Displaying 6 items

<input type="checkbox"/>	Instance Name
<input type="checkbox"/>	scs-summit-8kz6s-5m7mv
<input type="checkbox"/>	scs-summit-8kz6s-287m9
<input type="checkbox"/>	scs-summit-openstack-alpha-1-29-v2-bn24m-bz1q6-j4r2c
<input type="checkbox"/>	scs-summit-openstack-alpha-1-29-v2-bn24m-bz1q6-dmf6j
<input type="checkbox"/>	scs-summit-openstack-alpha-1-29-v2-bn24m-bz1q6-jc2f2
<input type="checkbox"/>	scs-summit-8kz6s-fmsk4



# eCommerce application in Kubernetes



Application

Database



# How the application is exposed

## Load Balancers

Q Click here for filters or full text search. ✕ + Create Load Balancer Delete Load Balancers

Displaying 3 items

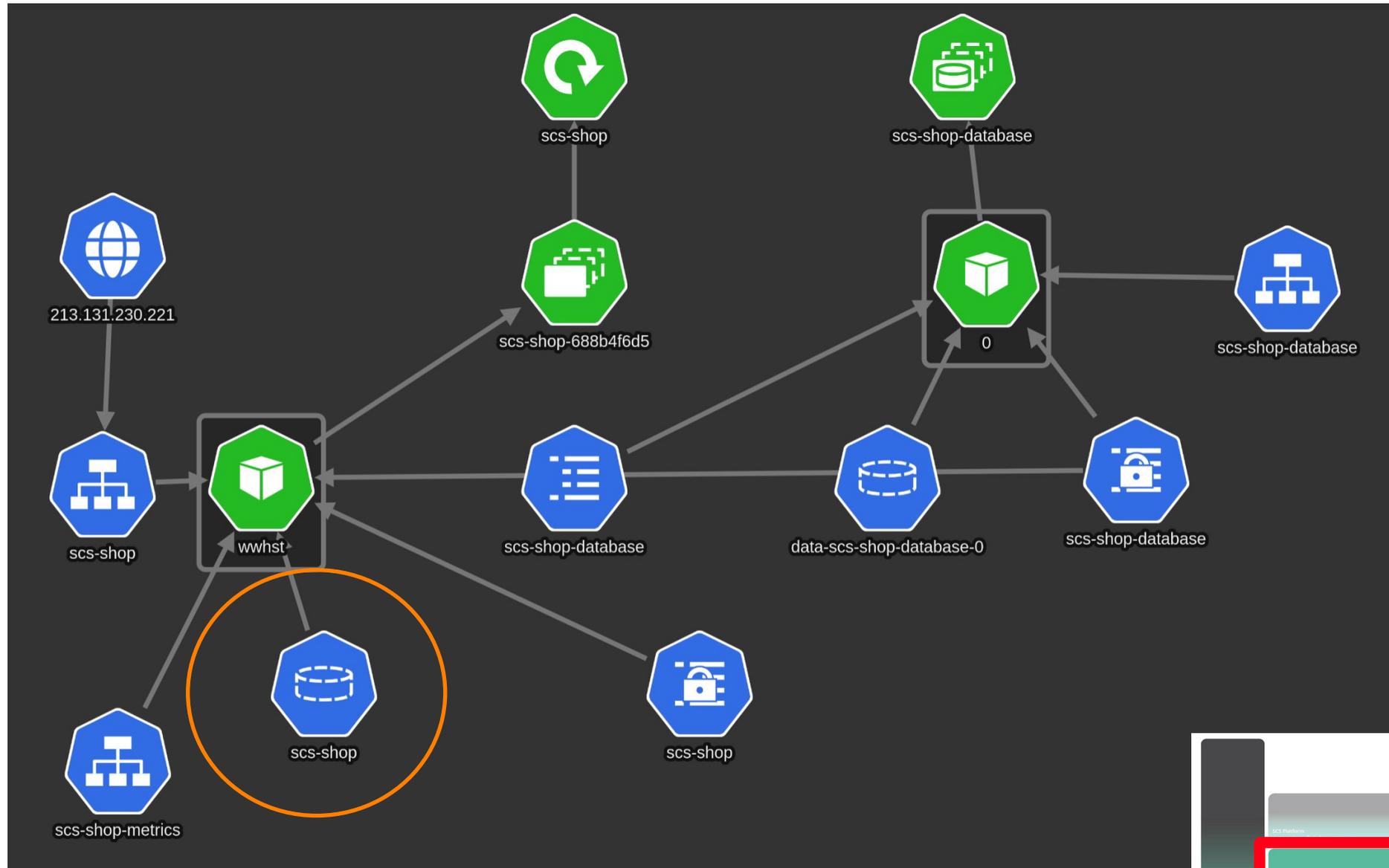
Name ^	IP Address	Availability Zone	Operating Status	Provisioning Status	Admin State Up
<a href="#">k8s-clusterapi-cluster-kaas-playground1-scs-summit-kubeapi</a>	10.8.2.223	-	Online	Active	Yes <span>Edit Load Balancer</span>
<a href="#">kube_service_kubernetes_ingress-nginx_ingress-nginx-controller</a>	10.8.1.225	-	Online	Active	Yes <span>Edit Load Balancer</span>
<a href="#">kube_service_kubernetes_scs-summit_scs-shop</a>	10.8.0.49	-	Online	Active	Yes <span>Edit Load Balancer</span>

<b>Name</b> kube_service_kubernetes_scs-summit_scs-shop	<b>Created At</b> 2024-05-11T22:11:21	<b>Network ID</b> 7889887b-146a-47df-a16f-796e9dfd3864	<b>Flavor ID</b> -
<b>ID</b> 9b476df6-600f-4a79-863a-8300a2a12521	<b>Updated At</b> 2024-05-11T22:12:48	<b>Subnet ID</b> f5750ee1-f224-430c-8585-8f8500a25071	<b>Provider</b> amphora
<b>Project ID</b> 476672f1023b4bac8837f95a76881757	<b>Description</b> Kubernetes external service scs-summit/scs-shop from cluster kubernetes	<b>Port ID</b> f392abe0-6f61-421e-9e58-9cf898d4c88e	<b>Floating IP</b> 213.131.230.221

Displaying 3 items



# Example application in Kubernetes



# Storage Details



scs-shop

## scs-shop

PersistentVolumeClaim

• Created: 5/11/2024, 10:07:18 PM

### Labels

- `app.kubernetes.io/instance`: scs-shop
- `app.kubernetes.io/managed-by`: Helm
- `app.kubernetes.io/name`: scs-shop
- `app.kubernetes.io/version`: 6.5.3
- `helm.sh/chart`: wordpress-22.2.7

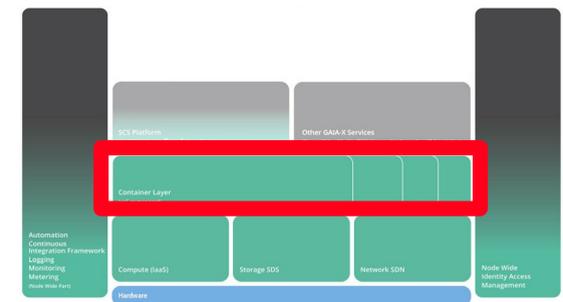
### Annotations

- `meta.helm.sh/release-name`: scs-shop
- `meta.helm.sh/release-namespace`: scs-summit
- `pv.kubernetes.io/bind-completed`: yes
- `pv.kubernetes.io/bound-by-controller`: yes
- `volume.beta.kubernetes.io/storage-provisioner`: cinder.csi.openstack.org
- `volume.kubernetes.io/storage-provisioner`: cinder.csi.openstack.org

### Status

- `phase`: Bound
- `accessModes`: ["ReadWriteOnce"]
- `capacity`: {"storage": "10Gi"}

Full Object Details



```

apiVersion: v1
kind: PersistentVolumeClaim
metadata:
  annotations:
    volume.beta.kubernetes.io/storage-provisioner: cinder.csi.openstack.org
    volume.kubernetes.io/storage-provisioner: cinder.csi.openstack.org
  name: scs-shop
spec:
  resources:
    requests:
      storage: 10Gi
  storageClassName: csi-cinder-sc-delete
  volumeName: pvc-7f93b379-a3d2-43ab-a7ea-f8ca651103d8
  
```

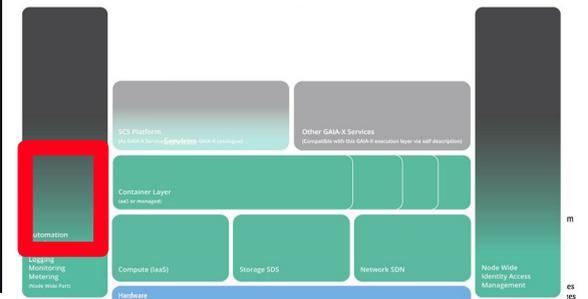
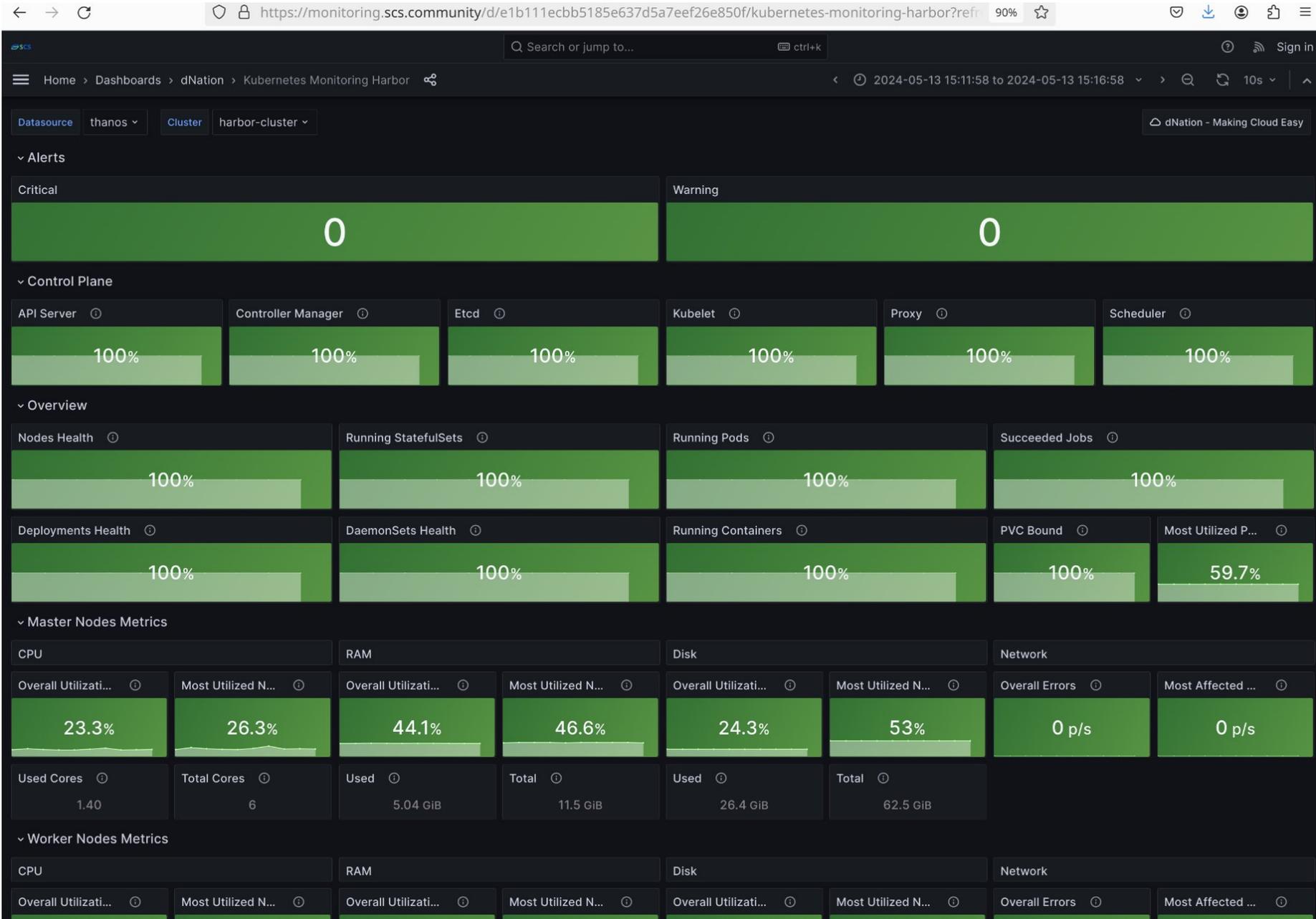
## Volumes

Displaying 5 items

<input type="checkbox"/>	Name	Description	Size
<input type="checkbox"/>	<a href="#">pvc-8710a06a-bf2f-48fc-8274-eec2c9df1dfd</a>	Created by OpenStack Cinder CSI driver	8GiB
<input type="checkbox"/>	<a href="#">pvc-7f93b379-a3d2-43ab-a7ea-f8ca651103d8</a>	Created by OpenStack Cinder CSI driver	10GiB

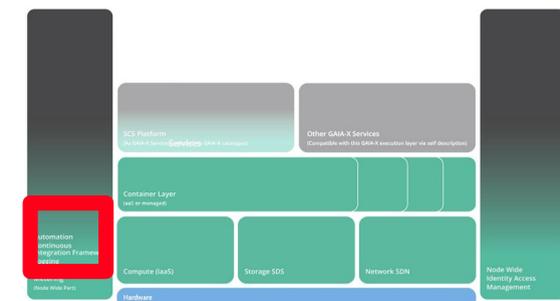


# Platform Monitoring



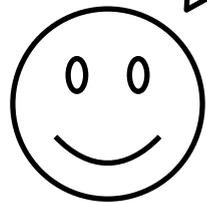
# Infra Monitoring

- Health monitoring (→ scenario tests)
- Compliance monitoring (public for SCS-certified)
- Metrics collection for metering and operations (prometheus)
- Alert-Manager



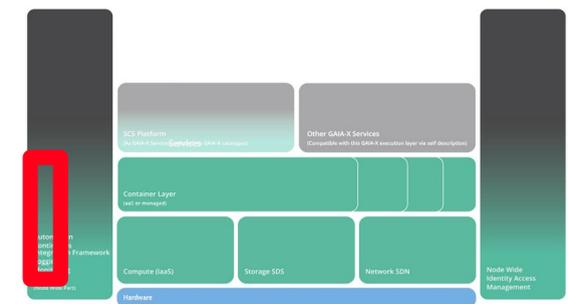
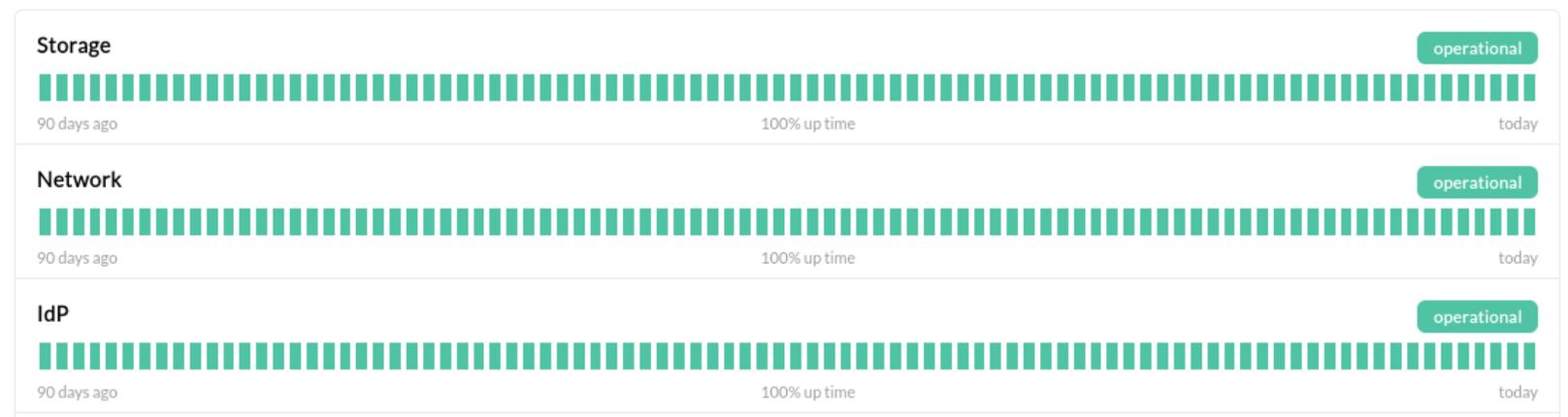
# Status Page (with own API)

- Manage incident status, current or planned
- Clear design with simple colors, historic events



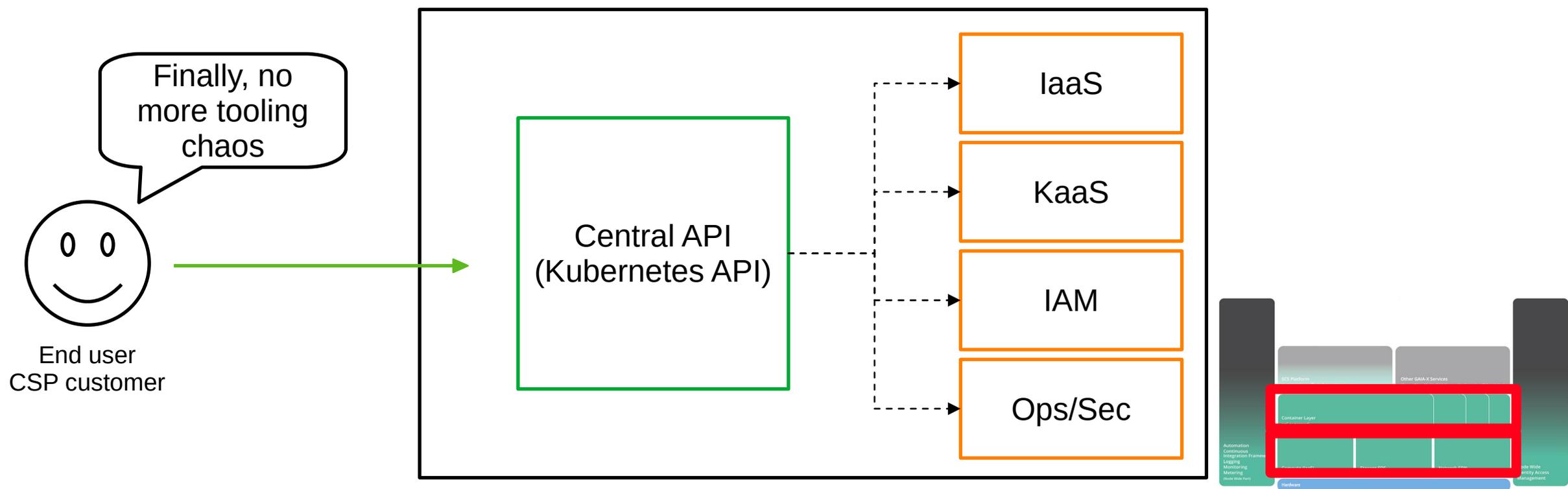
Everything works as expected!

End user  
CSP customer

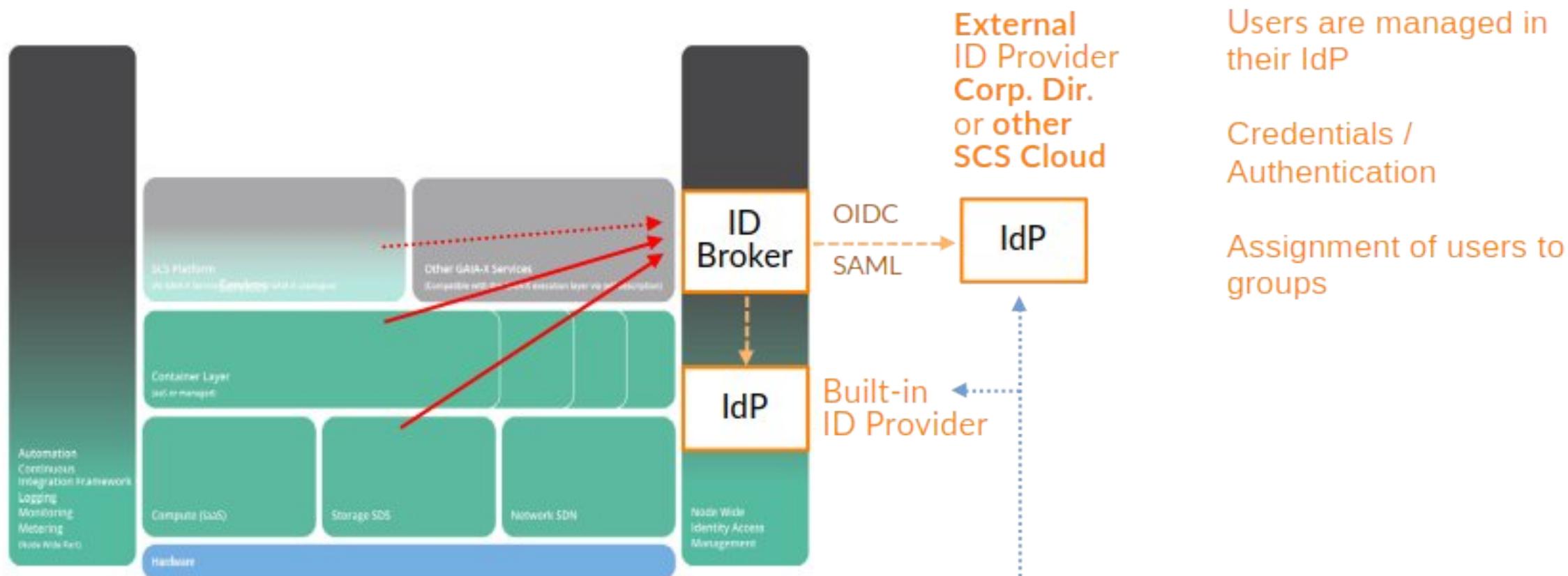


# Central API – one endpoint for daily business

- Standardized API endpoint for majority of use cases
- Combines IaaS, KaaS, IAM and Ops into 1
- Powered by Kubernetes and Crossplane



# Self-Service Identity Federation: Cross-Service and Cross-Cloud identities



All functional layers use Identities from built-in Identity Broker (keycloak) for customers

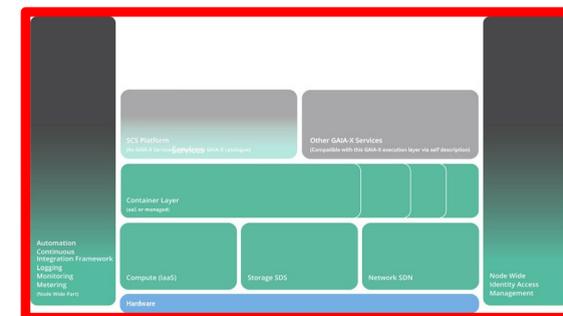
ID Broker maps groups to role assignments (authorizations) on resources in this specific cloud

Customer manages his own domain / realm



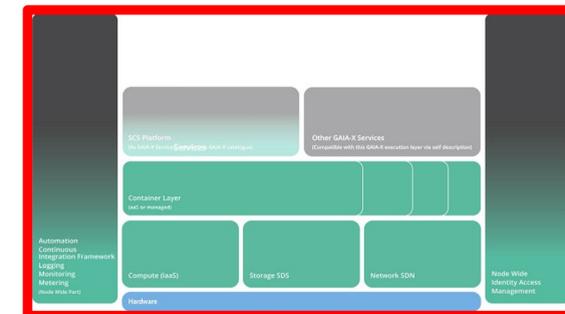
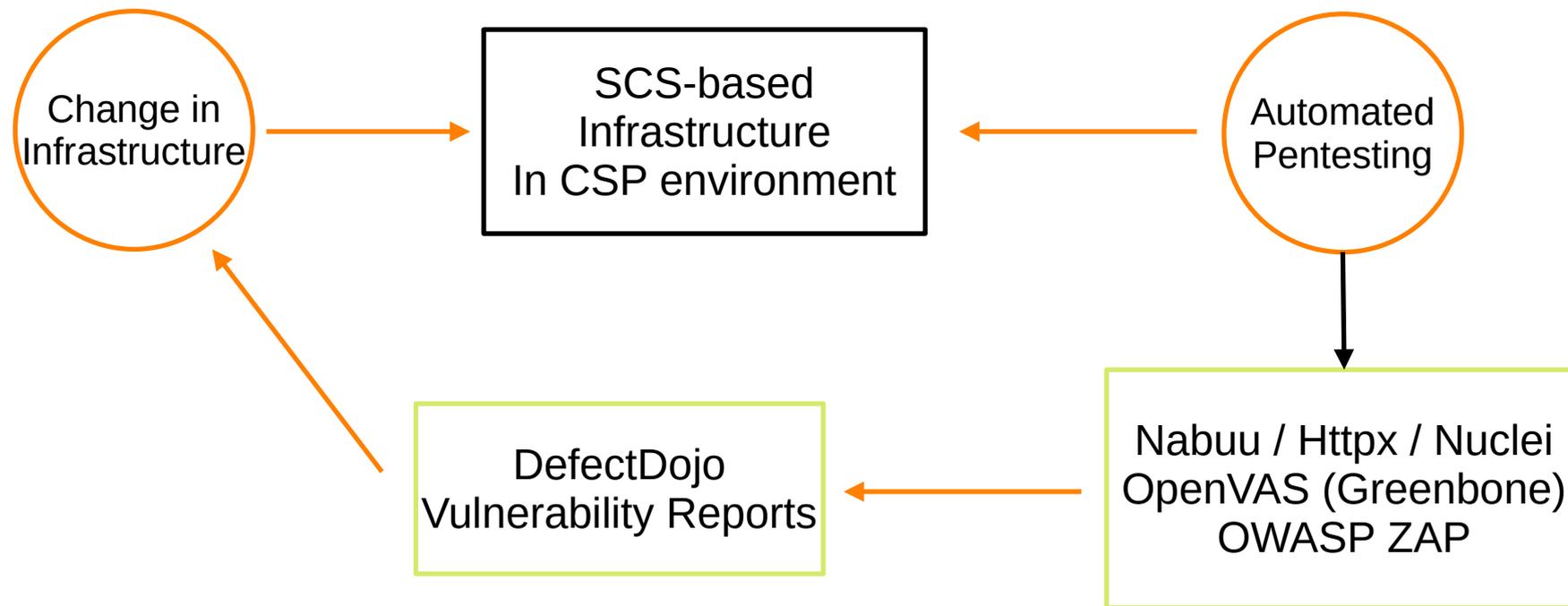
# Security by design

- Standardized best practices
- Deployment uses strong secure defaults
- Hardware features, confidential computing
- Sharing knowledge through blog posts
- Supply chain security



# Automated Security Penetration Testing

- **Dynamic Security Analysis of deployed infrastructure**
- **Scheduled job creates daily reports**



# Some learnings

## Surprising and less surprising ones ...



## BMW (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?

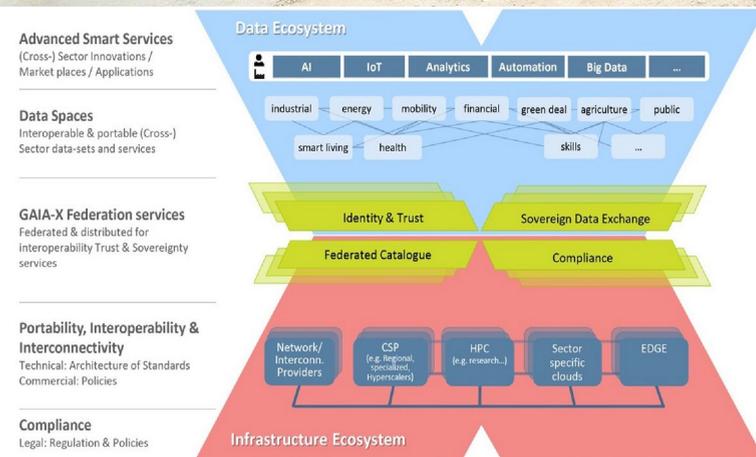
## A history of trying to contribute



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/XFSG: ✓~~



## 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



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 Ganten (Vorstandsvorsitzender)

E-Mail: ganten@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

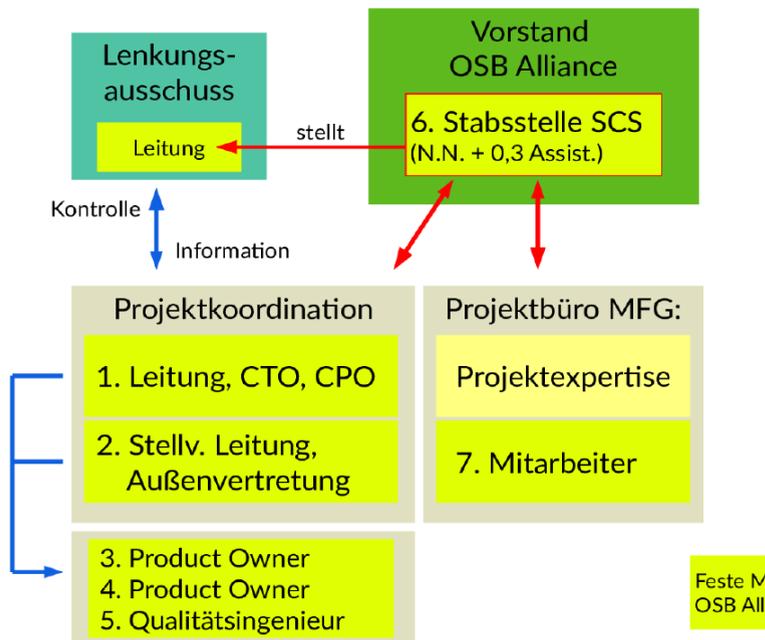
Bundesverband für digitale Souveränität e.V.

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/aaS, Metal as a Service, Life Cycle Management	<a href="#">Lot 1</a>	2021-07-30	2021-08-20	SCS-VP01
2	Ops Best Practice Knowledge Base, CSP Transparency	<a href="#">Lot 2</a>	tba	tba	tba
3	Storage Technology	<a href="#">Lot 3</a>	2023-03-17	2023-04-10 T12:00+02:00	SCS-VP03
4	Networking	<a href="#">Lot 4</a>	2023-02-28	2023-03-22	SCS-VP04
5	K8s aaS Integration	<a href="#">Lot 5</a>	2022-09-27	2022-10-19	SCS-VP05
–	Container Network and Storage Integration	<a href="#">Lot 6a</a>	2023-02-24	2023-03-20	SCS-VP6a-2
6	Container Network and Storage Integration	<a href="#">Lot 6a</a>	2022-09-27	2022-10-19	SCS-VP6a
7	Container Meshing and Proxy	Lot 6b	tba	tba	tba
8	Container Registry / Scanning	<a href="#">Lot 6c</a>	2022-06-29	2022-07-21	SCS-VP6c
9	Container Monitoring / IaC / CI / Deployment Automation	<a href="#">Lot 6d</a>	2021-12-22	2022-01-19	SCS-VP6d
10	Container Tracing & Audit	Lot 6e	tba	tba	tba

# 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.

# Deutsches Vergabeportal



Contact



Newsletter



Support

Are you looking for public contracts?

Over 25,000 cross-portal public procurement notices daily from all sectors.

Information for tenderers

Advantages for foreign tenderers

Learn how and why your business benefits from participating in public contracts in Germany.

International tenderers

English instructions

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

Portal usage instructions

## Staffing

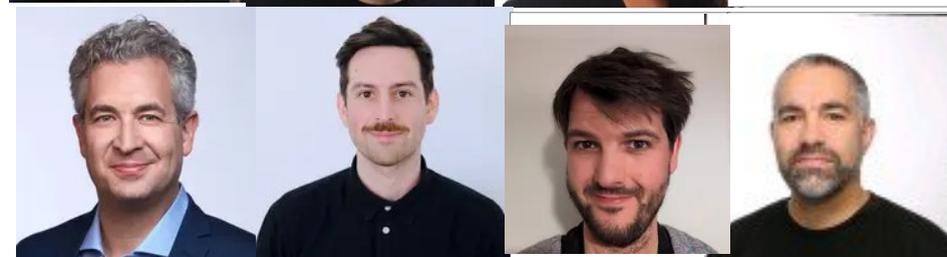
We pay public service salaries (with IT bonus).  
We must not pay more. (Besserstellungsverbot)

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“)



# 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

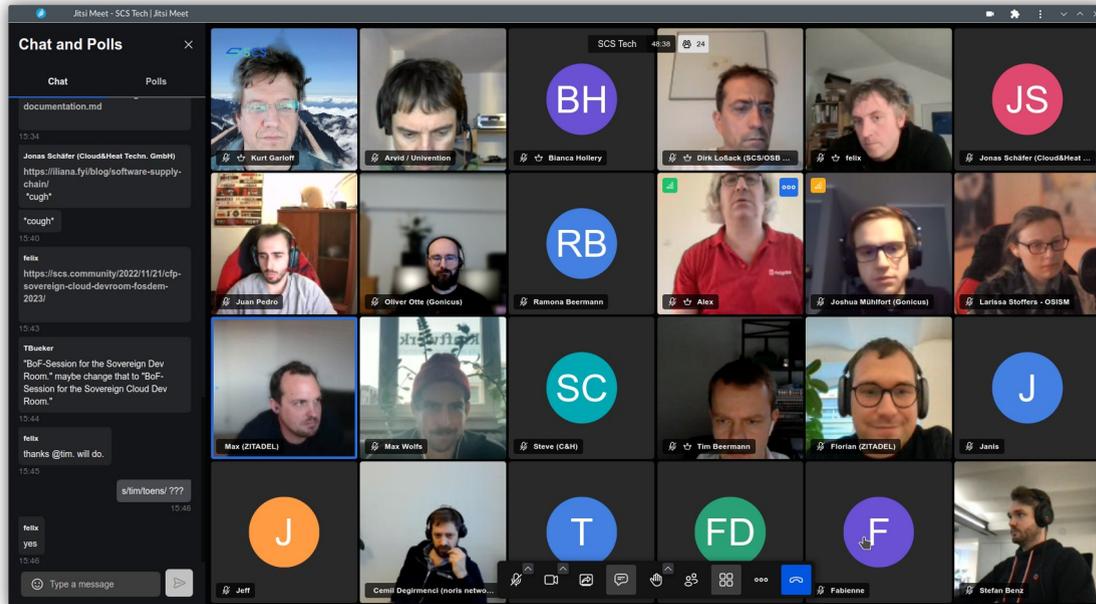
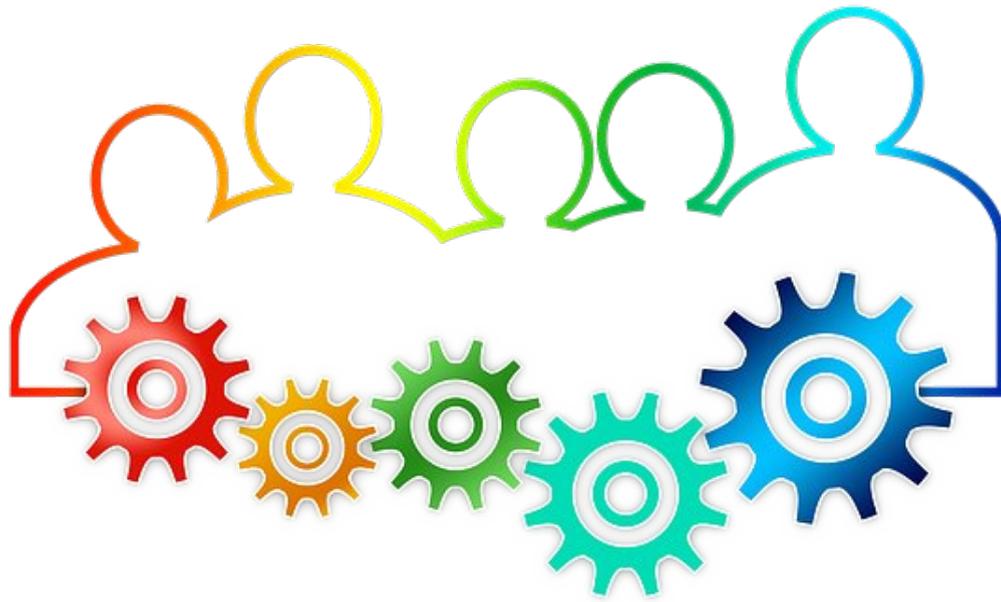
Github

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

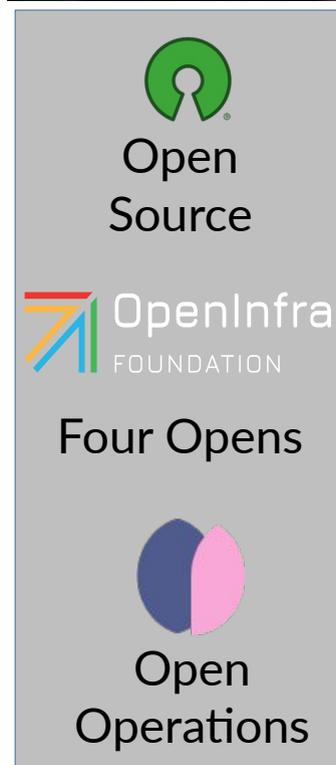
Github issues, PRs, project board, minutes, ...

### Open Operations

Joint knowledge building for excellent operations

Upstream first!

Healthy community with tender contractors, CSP employees, volunteers

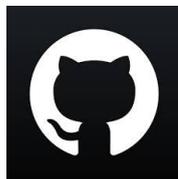


Open Source

OpenInfra FOUNDATION

Four Opens

Open Operations



## Early adopters

Early adopters are a key success factor

- 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 ...



# Standardization

Try to make standardization fun

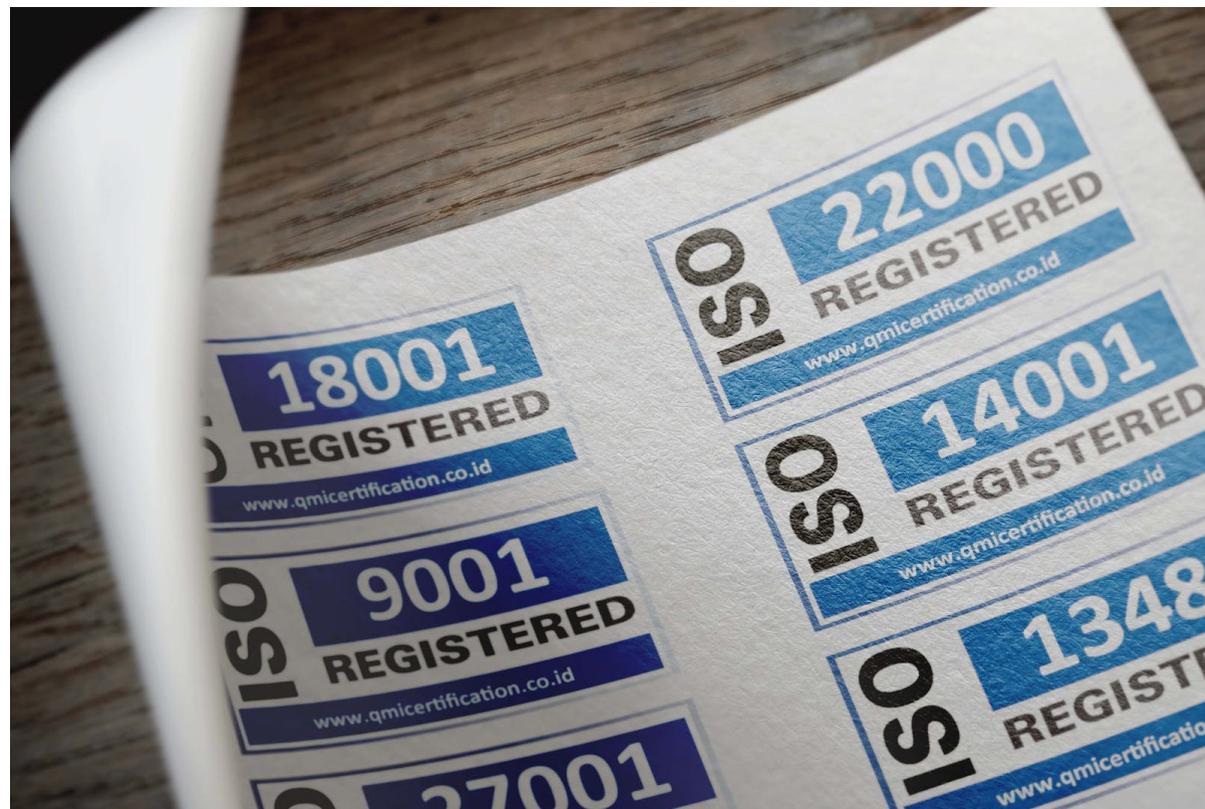
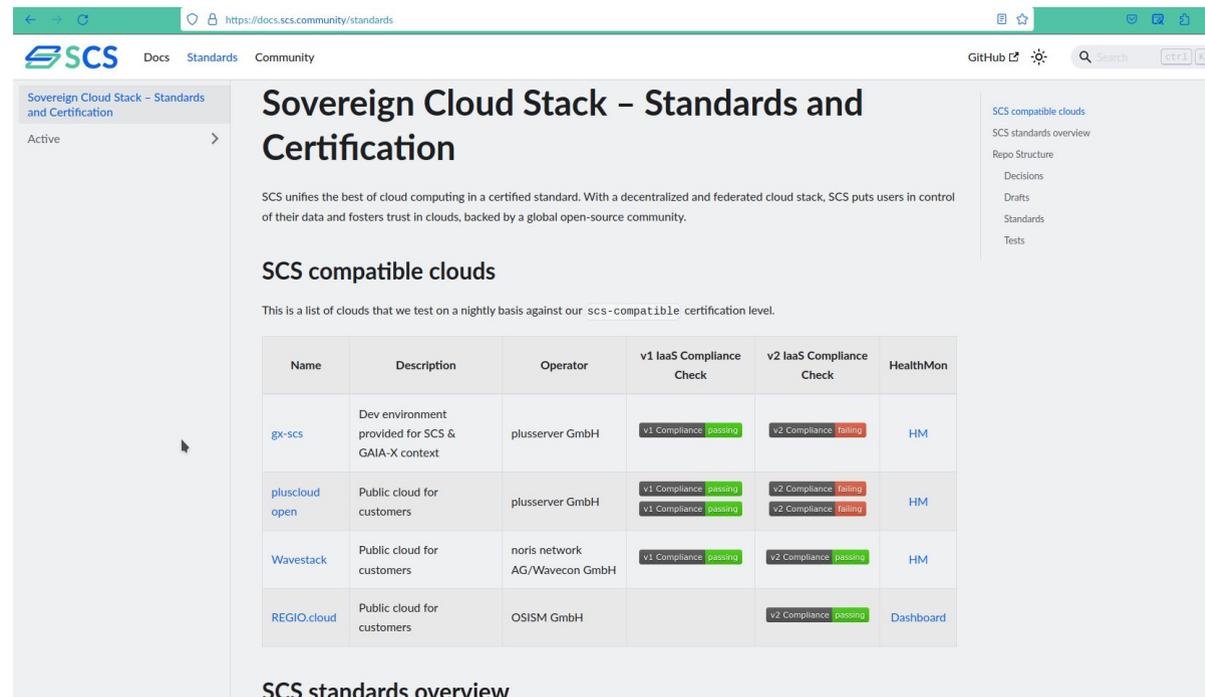
- In lockstep with reference implementation
- Tests developed along with standards
- Automated nightly compliance checks
- Results are public!

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

https://docs.scs.community/standards

SCS Docs Standards Community GitHub

## 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.

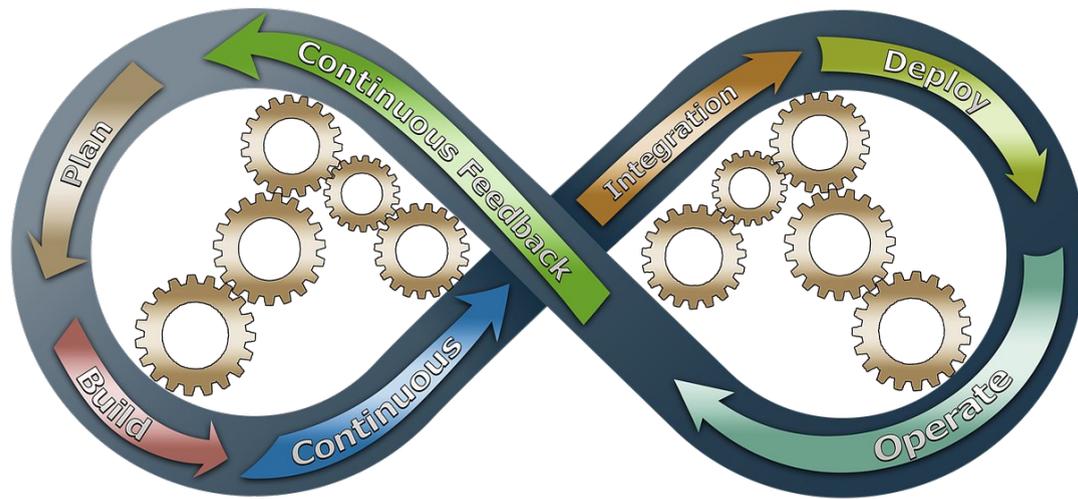
### SCS compatible clouds

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 <span>passing</span>	v2 Compliance <span>failing</span>	HM
pluscloud open	Public cloud for customers	plusserver GmbH	v1 Compliance <span>passing</span>	v2 Compliance <span>failing</span>	HM
Wavestack	Public cloud for customers	noris network AG/Wavecon GmbH	v1 Compliance <span>passing</span>	v2 Compliance <span>passing</span>	HM
REGIO.cloud	Public cloud for customers	OSISM GmbH		v2 Compliance <span>passing</span>	Dashboard

SCS standards overview

# CI and transparency



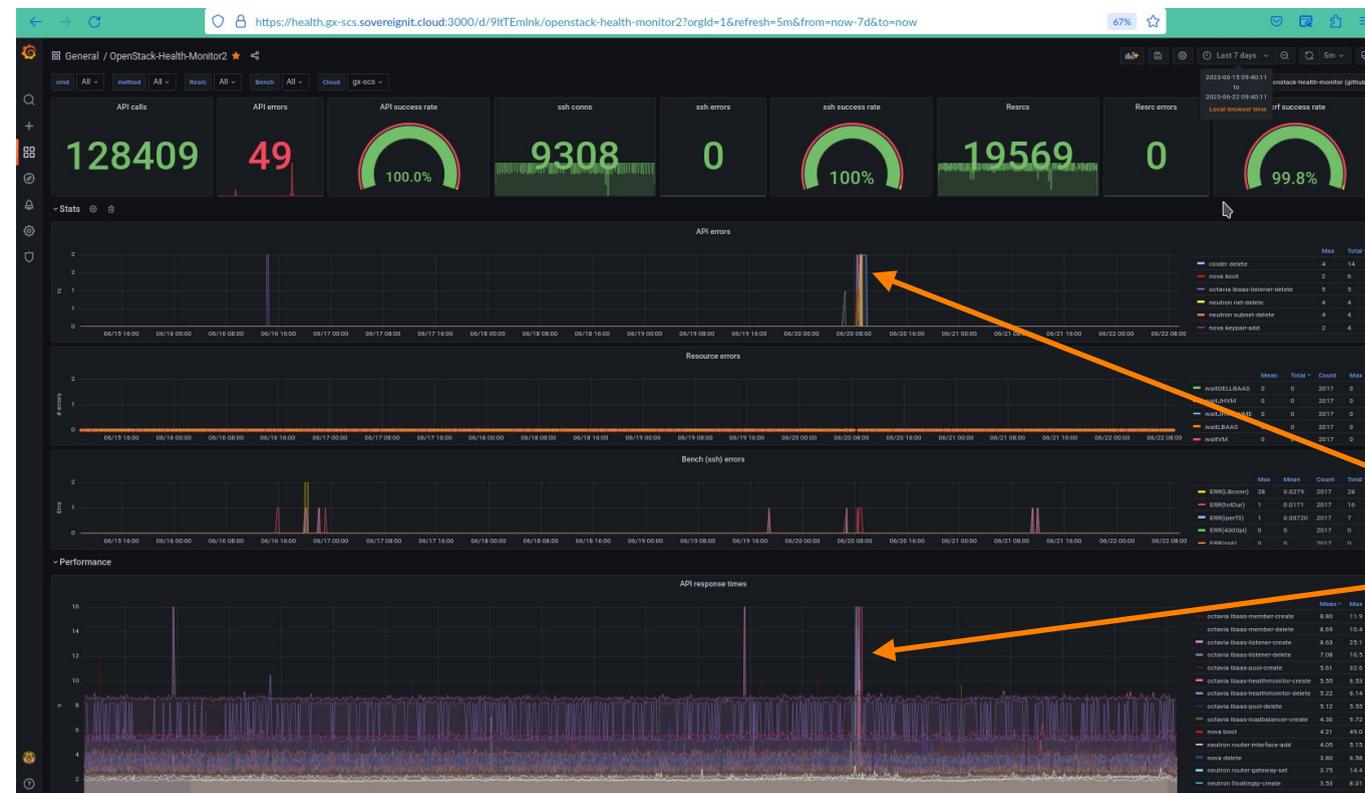
Investment into continuous testing pays off

- 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.

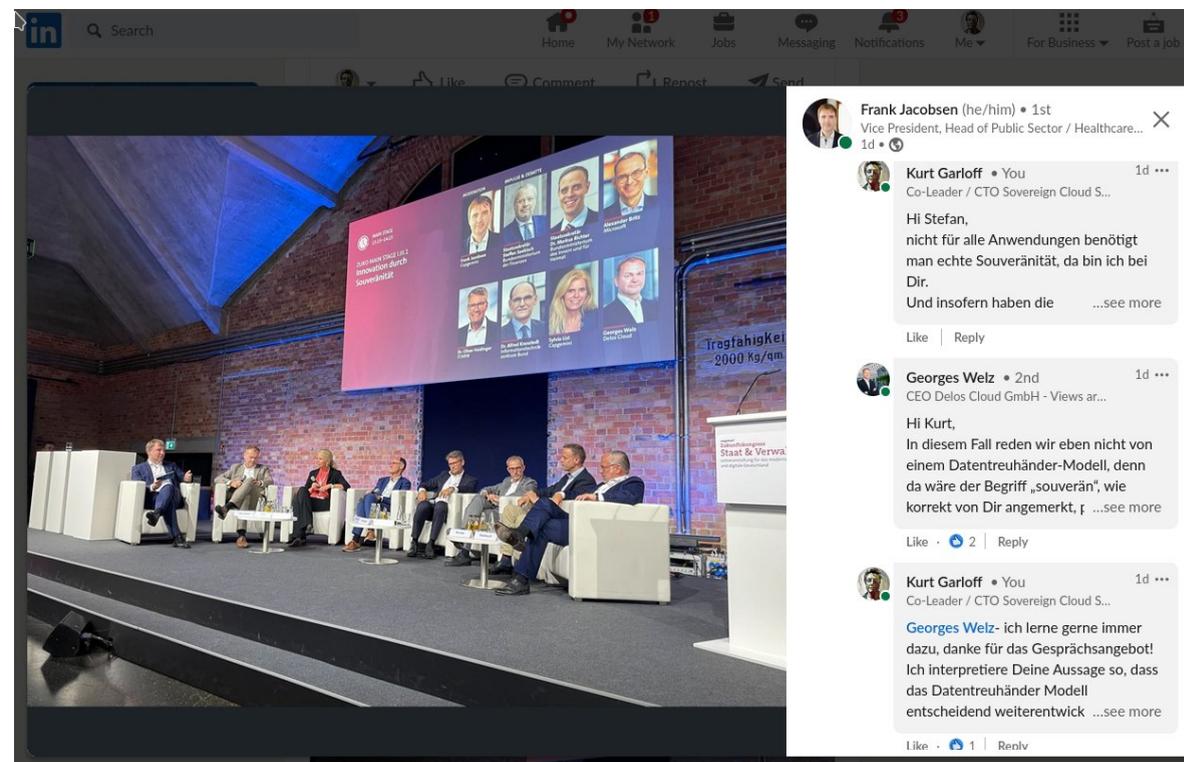


# Sovereignty debate

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

 Sovereign  
Cloud Stack

— An OSB ALLIANCE project —

 FrOSCon

Supported by:



on the basis of a decision  
by the German Bundestag

gaia-x

plusseryer



SEP

univention  
be open.

linuxhotel  
Schulung im Linux Ökosystem

DR. DANIEL GERBER  
Mitglied des Sachverständigen Landtags

CLOUD  
& HEAT

VOICE  
Bundesverband der  
IT-Anwender e.V.

## Networking and communication

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

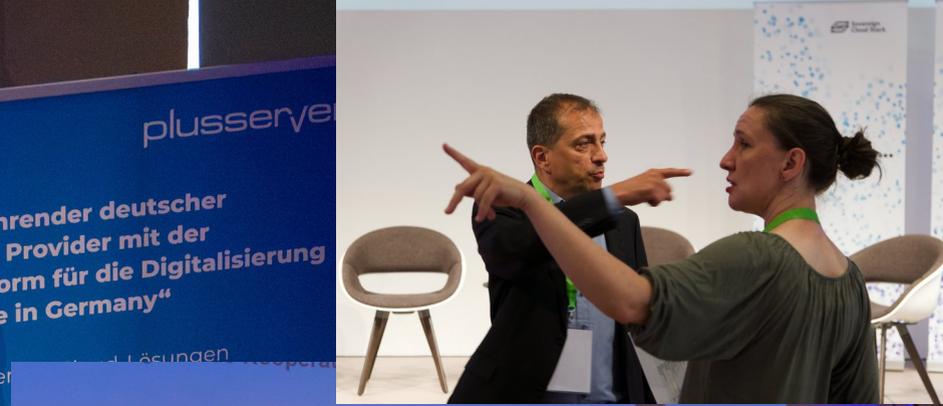
Spreading the word is the job of every team member.

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, ...

# Working on adoption

The platform is as strong as the set of operators is ...

# SCS Summit 2024



# SCS Adoption (public clouds 8/24)

## Cloud services based on Sovereign Cloud Stack



# Bavaria Cloud for Schools: Owncloud Infinite Scale on PlusCloudOpen (=SCS)

## Infrastructure (today)



3 Environments

Kubernetes Version: 1.28.7

Worker Groups Image flatcar 3815.2.0



142 production clusters

30 schools per cluster + central services (IDM, Observability, ...)



3.268 production nodes

SCS-8V:16:100 - maximum: 100 - minimum: 1 - maxSurge: 5

Idle Usage: 0,42 vCPU (avg.) & 2,26 GB vRAM (avg.)



252.494 production pods

2.355 pods per cluster

80 – 110 pods per node



35.315 production PVCs

331 PVCs per cluster

# SCS Summit 2024: ScaleUp: Combining OCP with SCS

## Our call to action / Conclusion

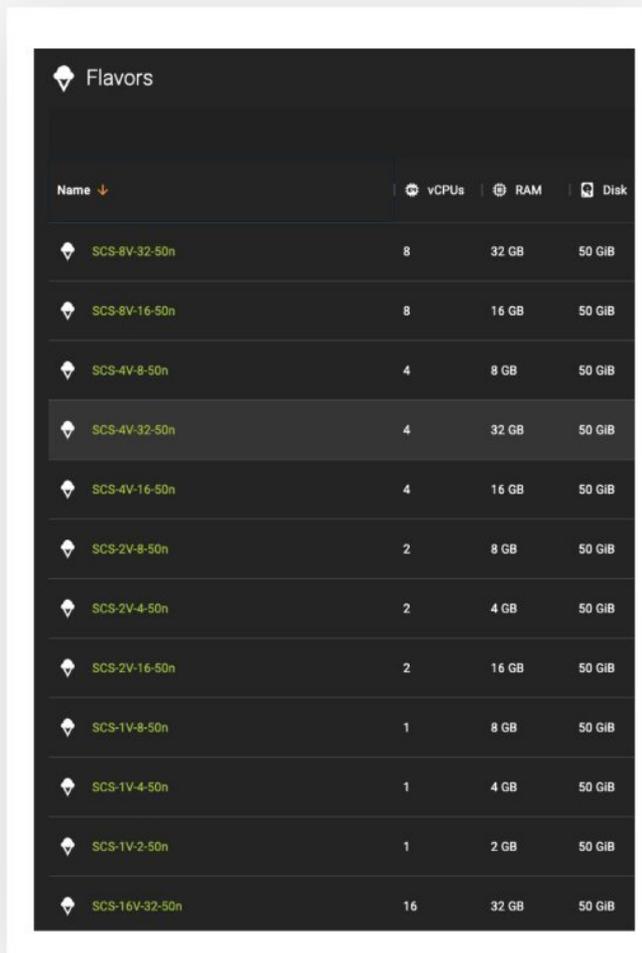
- Open Hardware and OCP can be a driver in reducing overall CO2 emissions if adopted more widely
  - OCP solutions have to be adopted by more service providers and enterprises
- Regional hosting/service providers should team up and collaborate
  - Start using SCS
- Customers should choose their (regional) cloud providers not only on cost, but also on sustainability aspects
- OCP Marketplace link to ScaleUp Open Cloud:



# SysEleven: Making existing OpenStack IaaS SCS-compatible

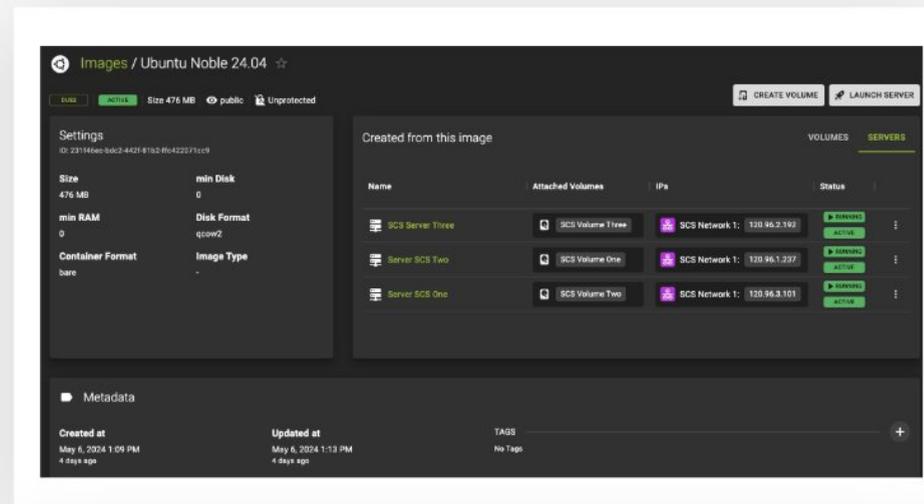
// Die Herausforderung

## SysEleven wird SCS-kompatibel



Flavors

Name	vCPUs	RAM	Disk
SCS-8V-32-50n	8	32 GB	50 GiB
SCS-8V-16-50n	8	16 GB	50 GiB
SCS-4V-8-50n	4	8 GB	50 GiB
SCS-4V-32-50n	4	32 GB	50 GiB
SCS-4V-16-50n	4	16 GB	50 GiB
SCS-2V-8-50n	2	8 GB	50 GiB
SCS-2V-4-50n	2	4 GB	50 GiB
SCS-2V-16-50n	2	16 GB	50 GiB
SCS-1V-8-50n	1	8 GB	50 GiB
SCS-1V-4-50n	1	4 GB	50 GiB
SCS-1V-2-50n	1	2 GB	50 GiB
SCS-16V-32-50n	16	32 GB	50 GiB



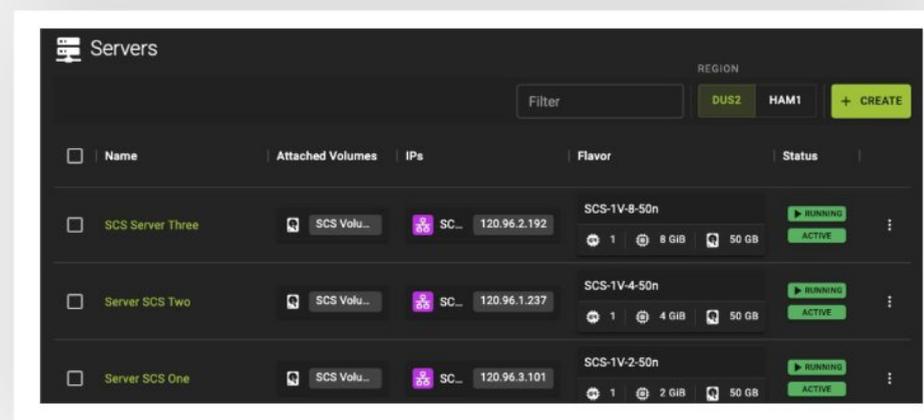
Images / Ubuntu Noble 24.04

Size 476 MB | public | Unprotected

Settings

Created from this image

Name	Attached Volumes	IPs	Status
SCS Server Three	SCS Volume Three	SCS Network 1: 130.96.2.192	RUNNING ACTIVE
Server SCS Two	SCS Volume One	SCS Network 1: 130.96.1.237	RUNNING ACTIVE
Server SCS One	SCS Volume Two	SCS Network 1: 130.96.3.101	RUNNING ACTIVE



Servers

Filter | DUS2 | HAM1 | + CREATE

Name	Attached Volumes	IPs	Flavor	Status
SCS Server Three	SCS Volu...	SC... 120.96.2.192	SCS-1V-8-50n	RUNNING ACTIVE
Server SCS Two	SCS Volu...	SC... 120.96.1.237	SCS-1V-4-50n	RUNNING ACTIVE
Server SCS One	SCS Volu...	SC... 120.96.3.101	SCS-1V-2-50n	RUNNING ACTIVE

# B1: Deploying SCS for large private clouds

## Beispiele für Anwendungsfälle



**BASF**

We create chemistry

- HPC Cluster für wissenschaftliche Berechnungen

Freistaat  
**Thüringen**  Thüringer  
Landesrechenzentrum

- Moderne Cloud-Umgebung für die Verwaltung

# Adoption by SCS partners



**What's Next for Open Source?**  
Workshops for Building Solutions with Open Innovation.





Flexible, secure,  
digitally sovereign  
office collaboration  
solution

Standardized, secure,  
digitally sovereign  
infrastructure

# Future structure

Tplatform is as strong as the set of operators is ...he funded  
project ends in Dec 2024 ...

# From funded project to sustainability

2024

2025

