



ALASCA

Going full arctic circle: Running ALASCA on open cloud infrastructure & standards.



— IMAGE FROM [SYSADMINDAY.COM](https://www.sysadminday.com)

**Shows them that you truly appreciate
their hard work and dedication**

FOCIS - Free and Open Cloud Initiative Saxony

This measure is co-financed with tax revenue on the basis of the budget approved by the Saxon state parliament.



— AGENDA

1. Which dogfood do you need to eat to run ALASCA?

2. Running on open standards - what worked for us, and what did not

01 Tofu-based IDM

02 GitLab CI autoscaler

03 Woodpecker CI autoscaler

04 RacStack

3. Open build infrastructure for ALASCA



VON CARO WEDEKIND - [HTTP://FOXITALIC.DE/2014/12/3103/](http://foxitalic.de/2014/12/3103/) - CC BY 3.0 , LINK

Wimmelbild of 31st Chaos Communication Congress

The tip of the iceberg



Underneath the surface

- Cloud & Heat sponsored us resources in an SCS-compatible IaaS environment, a.k.a. **dd8a**
🙏 → we created „Terms of Use“ form to get access → **Apply now!** via hello@alasca.cloud
- Friends, configured over identity management repository
 - FOCIS (Tarook + Yaoook)
 - Turing e.V.
 - fedihay
 - FOSSGIS e.V.
 - Elbforge.org
 - SCOMB - SONiC Community Build
 - Yake
 - Pacifico

The Abyss

“ Do you want to have hedgedocs? Sure.

– TSC, PROJECTS & FOCIS MEETING • THAT ESCALATED QUICKLY ...

- is Hedgedoc up? → install status monitor ([Uptime Kuma](#))
- is Hedgedoc secure? → install [Traefik](#)/Let's Encrypt
- how to share admin password → install password manager ([VaultWarden](#))
- how to login in password manager → install identity provider ([Keycloak](#))
- are service up to date → install [renovate](#)
- what if service breaks → configure S3 backup & restore
- document everything → configure [MkDocs](#) at [docs.alasca.cloud](#) → store [laC repo](#)

The Abyss II

- provide [Thanos Helm chart](#) via charts.alasca.cloud/thanos
- [GitLab Runner Manager \(active/active\)](#) (see Part II)
- multi-forge [Woodpecker CI \(WIP\)](#) (see Part II)
- Other stuff to manage:
 - WIP: Grafana + Prometheus
 - OpenStack [Billing Dashboard](#) (see Part II)
 - SCS: SIG Standardization/Certification
 - Public [issue board](#)
 - SCS [compliance monitor](#)
 - [alasca.cloud](#) Wordpress, 19 [mailing](#) lists via mailman3, DNS entries, ALASCA Summit, Tech talks, Podcast, Mastodon, LinkedIn, Youtube, Marketing MeetUp and so on...

— RUNNING ON OPEN STANDARDS

Tofu-based IDM

Goal: Transparent and auditable management of identities and resource allocation on our SCS cloud domain, across ALASCA, FOCIS & Community Resources.

What does SCS offer: `DomainManager` role has to be available ([SCS-0302](#)).

Solution: Open source IaC approach: [Tofu file](#) that uses the OpenStack provider.

What worked: projects & groups

```
# Projects
resource "openstack_identity_project_v3" "prod" {
  name      = "prod"
  domain_id = var.alasca_id
}

# Groups
resource "openstack_identity_group_v3" "focis" {
  name          = "focis"
  description    = "Members of the FOCIS initiative"
  domain_id     = var.alasca_id
}
```

What worked: roles & users

```
# Group roles
resource "openstack_identity_role_assignment_v3" "focis_is_prod_member" {
  group_id   = openstack_identity_group_v3.focis.id
  project_id = openstack_identity_project_v3.prod.id
  role_id    = data.openstack_identity_role_v3.member.id
}

# Users
resource "openstack_identity_user_v3" "danielgerber" {
  name       = "daniel.gerber"
  domain_id  = var.alasca_id
  enabled    = true
}
```

— TOFU-BASED IDM

What doesn't work

Quota allocation

`DomainManager` can't set or read quotas, OpenStack has no domain level quotas

→ we request quotas for each project via mail to our CSP & track them in a spreadsheet :(

— TOFU-BASED IDM

What doesn't work

Usage monitoring or “billing”

`DomainManager` can't read quota usage

& SCS has no requirements for a pricing or billing solution

→ we use [RacStack](#) and have a dedicated user in projects that opt-in

ALASCA needs to provide resources for:

US GOVERNANCE



- [Yake](#)
- [Arko](#) (moving to GitLab)

US GOVERNANCE



- [Yaook](#)
- [Tarook](#)
- [Krake](#)
- [Seconlay](#)

EU GOVERNANCE



- [IXpect](#)

Scale „To infinity and beyond!”

- similar to GitHub Actions but for Gitlab
- **Why?** isolated, throw-away VMs/runners for ALASCA Community (more security)
- GitLab Runner instance group autoscaler provides fleeting framework
- **fleeting framework:** is a library that GitLab Runner uses to provide a plugin-based abstraction for a cloud provider's instance groups.
- **(Sarcastic) question:** Which cloud providers are supported officially?
AWS, Google Cloud, Azure
- **(Even more sarcastic) question:** Which community providers are documented officially?
Yes, VMware.

ALASCA FOCIS setup

- we found another community project by Sardina Systems, [fleeting-plugin-openstack](#)



- **What does SCS/dd8a offer?** Standardized set of OpenStack APIs, flavors and images
 - Image upload via Glance MUST be allowed based on a fair-use policy. ([scs-0104](#))
 - Mandatory flavors ([scs-0103](#))
 - Mandatory images: SCS is missing image for CI jobs (i.e. **flatcar**)

ALASCA FOCIS setup

- Issues with upstream project
 - project is ini file based and therefore hard to configure dynamically
 - resource referenced by UUID (change after updates)
 - manually provide and maintain build image
 - not properly maintained → move to ALASCA (supported by Helmholtz and Syseleven? 🙌)
- How to DoS your cloud:
 - configure runners to use ephemeral storage & start a bunch of runners 🏃
 - 🔥 `No valid host was found. There are not enough hosts available.` 🔥
- source code of our extension is found at [ALASCA GitLab group](#)
- All you need is: GitLab Runner Token, OpenStack project & application credential, Host with docker → `docker compose up -d`

ALASCA FOCIS setup

- Issues with upstream project
 - project is ini file based and therefore hard to configure
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- How to DoS your cloud:
 - configure runners to use ephemeral storage & start a build
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GET YOUR
**OWN
RUNNER!**

hello@alasca.cloud

— RUNNING ON OPEN STANDARDS

Woodpecker autoscaler

Goal: Open up options to leave GitHub & GitLab.

Problem: Woodpecker CI autoscaler does not support OpenStack/SCS.

Solution: Implement an OpenStack provider during the ALASCA Hackathon.

What worked

pool-1-agent-Lfmy	Ubuntu 24.04	10.10.3.77	SCS-2V-4
pool-1-agent-BsDc	Ubuntu 24.04	10.10.3.8	SCS-2V-4
pool-1-agent-uyee	Ubuntu 24.04	10.10.0.85	SCS-2V-4

What worked

Agents

Agents registered on this server.

+ Add agent

pool-1-agent-uyee	platform	linux/amd64	backend	docker	capacity	1	last contact	just now		
pool-1-agent-BsDc	platform	linux/amd64	backend	docker	capacity	1	last contact	just now		
pool-1-agent-Lfmy	platform	linux/amd64	backend	docker	capacity	1	last contact	just now		

What doesn't work

We tried to use the SCS mandatory image (latest Ubuntu LTS) automatically

But:

The filter logic supplied by SCS selected a random snapshot since those inherit all metadata from their original image

- we additionally filter out all snapshots
- SCS docs or standards need to be refined

RacStack - Billing Dashboard for OpenStack

- **Why?**
 - ALASCA provides community resources and needs to measure them 🧠
 - FOCIS looked for commercial use-cases 🧪: equipping existing heterogeneous cloud infrastructures with efficient monitoring
- developed on top of [racletteJS](#) 🧀 by [pacifico](#)
- source code (MIT), issues and documentation can be found at [GitLab](#), discussions in [matrix room](#)
- needs Keystone, Nova, Gnocchi, Cinder and Neutron
- ideal to measure Woodpecker and GitLab CI runners

Features

- Measurable OpenStack resources: Instances, Floating IPs, Volumes
- Installable via docker compose
- Configurable dashboard with charts and tables
- Export data to [XRechnung](#) and [ZUGFeRD](#)
- **Project** → **Customer** → **System** billing/pricing adjustment for OS resources

9 widgets

PACIFICO

OPENSTACK BILLING DASHBOARD

 **Billing Overview Charts**
Openstack Billing Dashboard · ...

 Floating IP Charts
Openstack Billing Dashboard · ...

Floating IP List Widget

 **Project Billing Overview**
Openstack Billing Dashboard · ...

Server Charts

Server List Widget

Volume Charts
Openstack Billing Dashboard · ...

Volume List Widget

Billing Overview Charts

Pacifico / Openstack-Billing-Dashboard

Server Charts

Floating IP Charts

Volume Charts

Pacifico / Openstack-Billing-Dashboard

— Timespan

Current Month

1 Aug 2025

27 Aug 2025

Incarnate User

Youself

🔍 Search ...

ID

VM

Flavor

Creation Date

Is Active

Usage hours in timespan

Cost in timespan

✓ Save

Next Step >



Default flavour prices



Fallback prices per Nova flavour when a customer has no override.



Enter amounts in EUR.

per hour

per month

Flavour Prices

+ Add Flavour

+ Add all missing flavors (30)

Show flavor catalog

Flavour Name

SCS-1L-1-5



Price (EUR/hour)

0

EUR



Export



Import

Cancel

Save

— SET PRICES FOR FLAVORS, IPS AND VOLUMES

— GET BREAKDOWN OF RESOURCES

Chart Type
Spend by resource type

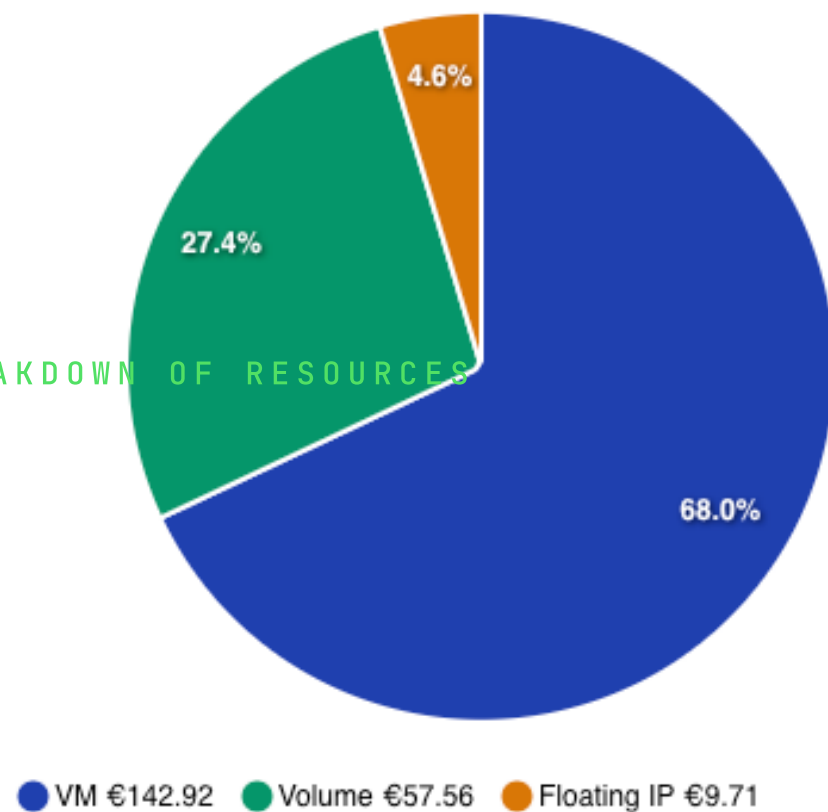
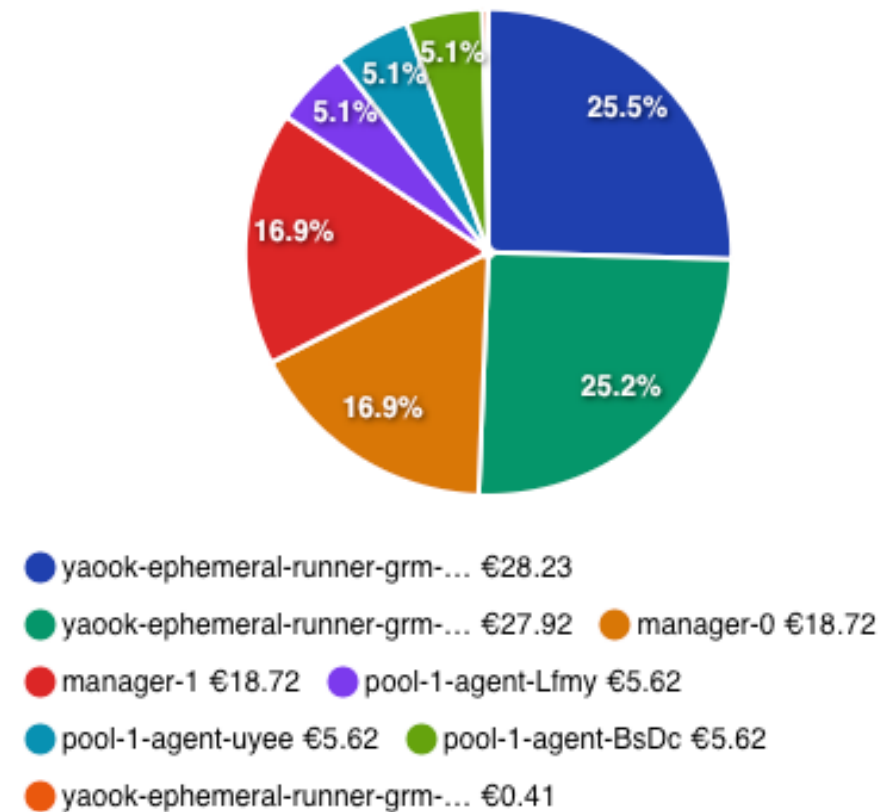


Chart Type
Cost per VM



Project billing

Timespan

Custom

Jun 21, 2026 - Jun 22, 2026

Filters



Search Project billing

Group	Project	Resource ID	Resource type	Name	Details	Billing start	Is Active	Usage hours in timespan	Cost in timespan
Project ci-runners								376 h	€10.56
	ci-runners	9011cefc-d80d-492a-b95c-6fcf3d727883	Volume	9011cefc-d80d-492a-b95c-6fcf3d727883	20 GB · __DEFAULT__	May 20, 2026, 1:02:02 PM		47 h	€1.29
	ci-runners	b336996f-36ad-417b-a498-b2cc93f01525	Volume	b336996f-36ad-417b-a498-b2cc93f01525	20 GB · __DEFAULT__	May 19, 2026, 10:14:40 AM		47 h	€1.29
	ci-runners	20ccf56e-0f0f-430d-afac-218155ab7199	VM	manager-0	SCS-2V-4	May 19, 2026, 12:14:36 PM		47 h	€1.24
	ci-runners	c122c293-5d9c-4194-86d9-9a154c5db525	VM	manager-1	SCS-2V-4	May 20, 2026, 3:01:59 PM		47 h	€1.24
	ci-runners	cefeccdf-50a6-4384-bffd-a5d55502ca52	VM	yaoock-ephemeral-runner-grm-0-1	SCS-4V-8-20	Jun 19, 2026, 2:00:00 AM		47 h	€2.43
	ci-runners	59c054b2-63cb-4b3d-843f-abd3569f50b6	VM	yaoock-ephemeral-runner-grm-1-1	SCS-4V-8-20	Jun 18, 2026, 2:00:00 AM		47 h	€2.43
	ci-runners	4564c416-a977-461d-995d-634174bf6a9a	Floating IP	94.198.185.21	94.198.185.21	May 19, 2026, 12:15:51 PM		47 h	€0.32
	ci-runners	91aba8a8-9865-4be8-b019-034c35c8c4fc	Floating IP	94.198.185.46	94.198.185.46	May 20, 2026, 3:02:44 PM		47 h	€0.32
Totals								376 h	€10.56

Items per page:

10

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VIEW ALL RESOURCES OF A PROJECT

— FILTER RESOURCES

Project billing

Timespan
Custom

Jun 21, 2026

Search Project billing

Group	Project	Resource ID	Resource type	Name	Details	Billing start	Is Active
Project ci-runners							
	ci-runners	9011cefc-d80d-492a-b95c-6fcf3d727883	Volume	9011cefc-d80d-492a-b95c-6fcf3d727883	20 GB · __DEFAULT__	May 20, 2026, 1:02:02 PM	
	ci-runners	b336996f-36ad-417b-a498-b2cc93f01525	Volume	b336996f-36ad-417b-a498-b2cc93f01525	20 GB · __DEFAULT__	May 19, 2026, 10:14:40 AM	
	ci-runners	20ccf56e-0f0f-430d-afac-318155ab7199	VM	manager-0	SCS-2V-4	May 19, 2026, 12:14:36 PM	
	ci-runners	c122c293-5d9c-4194-86d9-9a154c5db525	VM	manager-1	SCS-2V-4	May 20, 2026, 3:01:59 PM	
	ci-runners	cefeccdf-50a6-4384-bffd-a5d55502ca52	VM	yaook-ephemeral-runner-grm-0-1	SCS-4V-8-20	Jun 19, 2026, 2:00:00 AM	
	ci-runners	59c054b2-63cb-4b3d-843f-abd3569f50b6	VM	yaook-ephemeral-runner-grm-1-1	SCS-4V-8-20	Jun 18, 2026, 2:00:00 AM	
	ci-runners	4564c416-a977-461d-995d-634174bf6a9a	Floating IP	94.198.185.21	94.198.185.21	May 19, 2026, 12:15:51 PM	
	ci-runners	91aba8a8-9865-4be8-b019-034c35c8c4fc	Floating IP	94.198.185.46	94.198.185.46	May 20, 2026, 3:02:44 PM	
Totals							

Items per page: 10

Filters

Project

Resource ID

Resource type

Name

Details

Billing start

Is Active

Usage hours in timespan

Cost in timespan

Reset filters

Apply filters

Project billing

Timespan

Custom

Jun 21, 2026 - Jun 22, 2026

Filters

Search Project billing

Export

☒	Group	Project	Resource ID	Resource type	Name	Details	Billing start			
☒		Project	ci-runners							
☒		ci-runners	9011cefc-d80d-492a-b95c-6fcf3d727883	Volume	9011cefc-d80d-492a-b95c-6fcf3d727883	20 GB · __DEFAULT__	May 20, 2026, 1:02:02 PM			
☒		ci-runners	b336996f-36ad-417b-a498-b2cc93f01525	Volume	b336996f-36ad-417b-a498-b2cc93f01525	20 GB · __DEFAULT__	May 19, 2026, 10:14:40 AM			
☒		ci-runners	20ccf56e-0f0f-430d-afac-318155ab7199	VM	manager-0	SCS-2V-4	May 19, 2026, 12:14:36 PM		47 h	€1.24
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☒		ci-runners	59c054b2-63cb-4b3d-843f-abd3569f50b6	VM	yaook-ephemeral-runner-grm-1-1	SCS-4V-8-20	Jun 18, 2026, 2:00:00 AM		47 h	€2.43
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☒		ci-runners	91aba8a8-9865-4be8-b019-034c35c8c4fc	Floating IP	94.198.185.46	94.198.185.46	May 20, 2026, 3:02:44 PM		47 h	€0.32
Totals							376 h			€10.56

Items per page:

10

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EXPORT DATA

JSON

XML

XRechnung

ZUGFeRD

> Preview

Copy

Download

— EXPORT CUSTOM FORMATS

Issues

- we have no admin privileges in `dd8a`, so we are limited to single project view per RacStack instance → `application credential always project scoped`
- Metering only draft status within SCS (see [scs-04xx](#)) → each CSP might have a different system
 - Possibly adjust SCS IaaS Standards for metering
 - Contribution to the debate: [Add cloud price publication & quote interface to SCS #738](#)

— OPEN BUILD INFRASTRUCTURE FOR OPEN CLOUDS

What does operational mean?

Goal: Operational, open cloud infrastructure solutions.

You are not free to modify & distribute software if you can't test & build it.

Case in point: The SONiC Community Build

Solution: Improve transparency and reproducibility

Document the status quo

FOCIS team will **do a test-run to document** the build process and infrastructure for a project.

- **distill & refine guidelines** on how to do that
- **formalize** them as part of the TSC project guidelines



Thank you. Stay in touch.

WEB



Website

alasca.cloud



Summit 2026

alasca.cloud/alasca-summit-2026



Tech-Talks

alasca.cloud/alasca-tech-talks



Podcast

alasca.cloud/alasca-opensnac-der-podcast



GitLab

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COMMUNITY



Mastodon

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LinkedIn

linkedin.com/company/alasca-cloud



Mailing lists

lists.alasca.cloud



Matrix

matrix.org/#ALASCA



YouTube

youtube.com/@alasca_e.V.