WALDUR

Waldur Introduction

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27th of March 2025, EasyBuild User Meeting (EUM‘25)

Outline

WALDUR

01 Introduction

02 Architecture

03 Use cases

Introduction

WALDUR

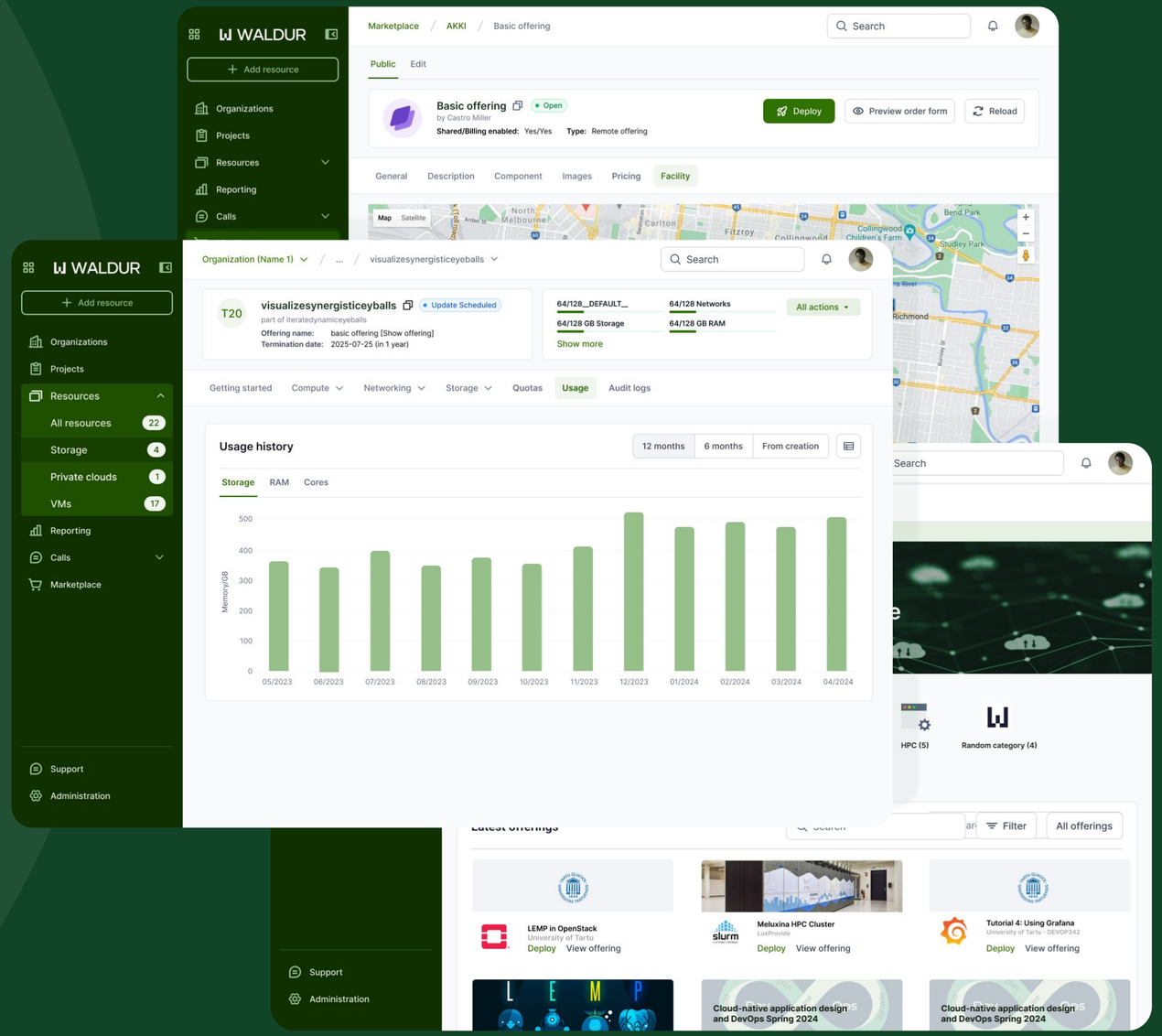
Waldur is a an open-source (MIT) cloud management platform with a marketplace. Used as a self-service platform by organizations for internal and external users.

While generic in design, main accent has been on private clouds and HPC systems.

Mature, ~10 years, developed mostly by OpenNode OÜ and University of Tartu.

Main goals

- User onboarding
- Team and project management
- Reporting
- Service offering management
- Resource management
- Helpdesk integration



Main Waldur Modules

- Marketplace core
- Marketplace plugins
- Access control
- Service desk
- Policies
- Notifications
- Application review portal (soon)

Design principles

Open and flexible

Cultural choice. Crucial for collaboration. Non-viral licensing. Configurable, feature toggles, extension points.

User friendly

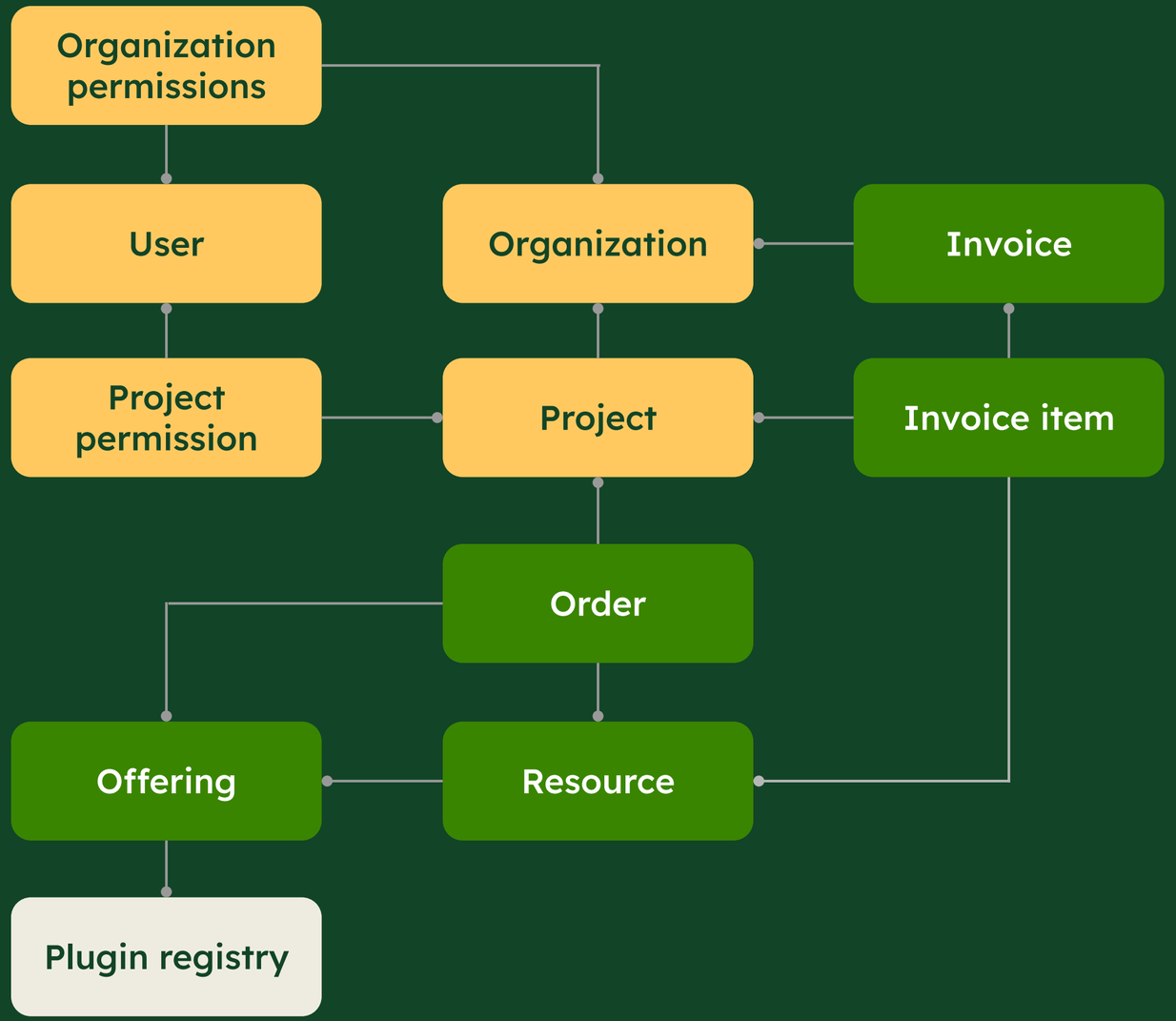
Happy end-users = happy operators.

API-first with web-based GUI. SDKs and configuration management modules.

Secure

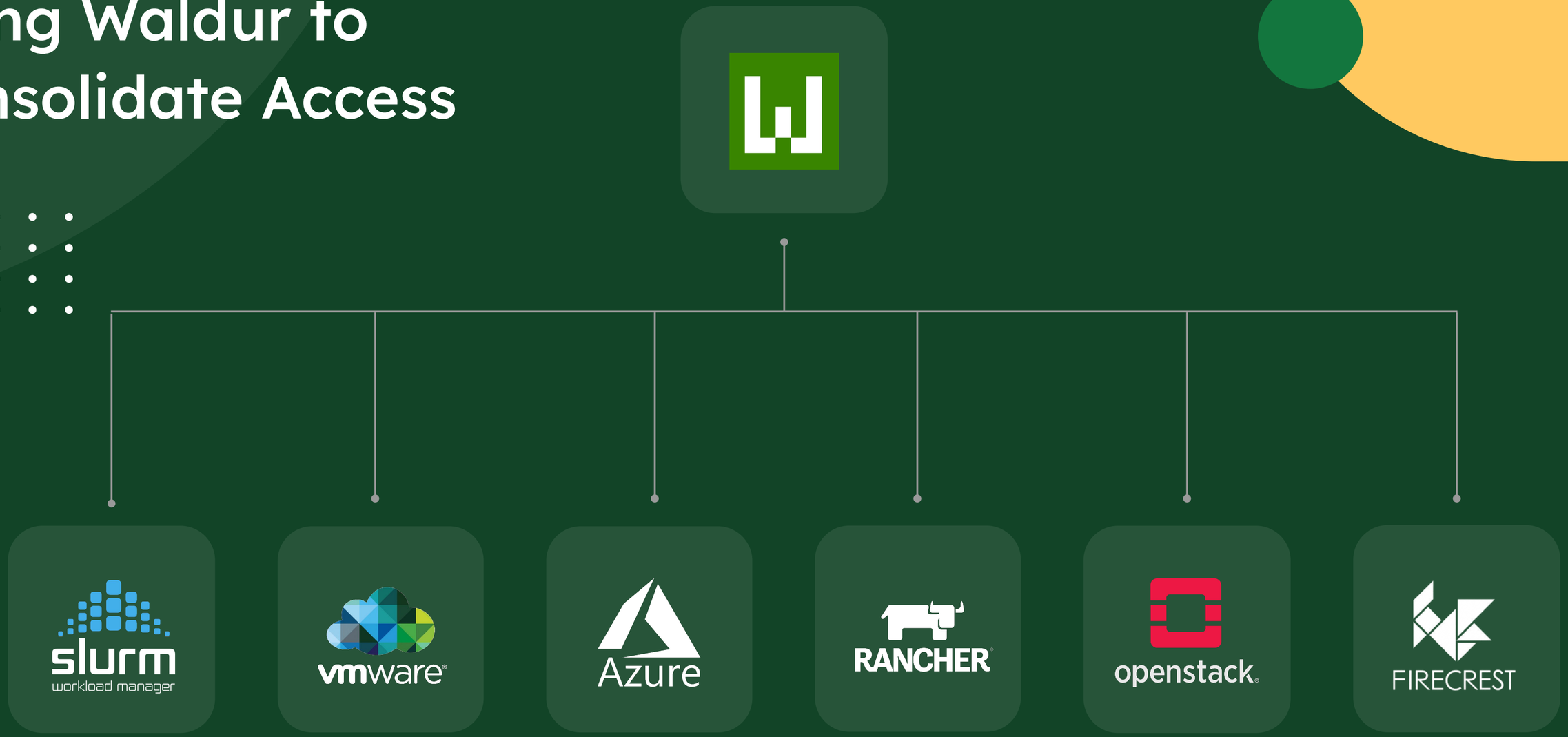
Stable technologies, security in development and operations.

Multi-tenancy and cost tracking

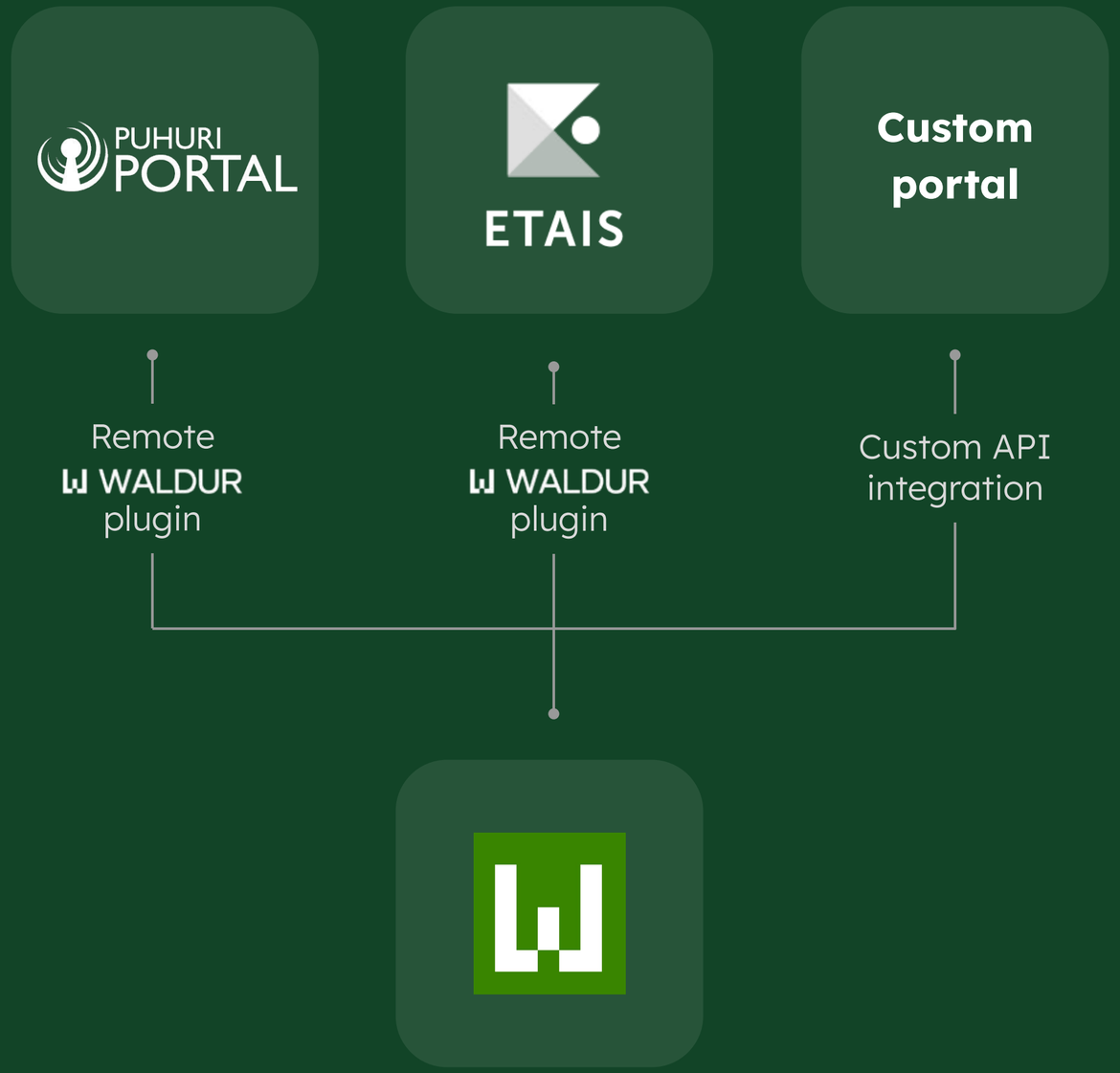


Architecture of Waldur

Using Waldur to Consolidate Access



Using Waldur to Share Access



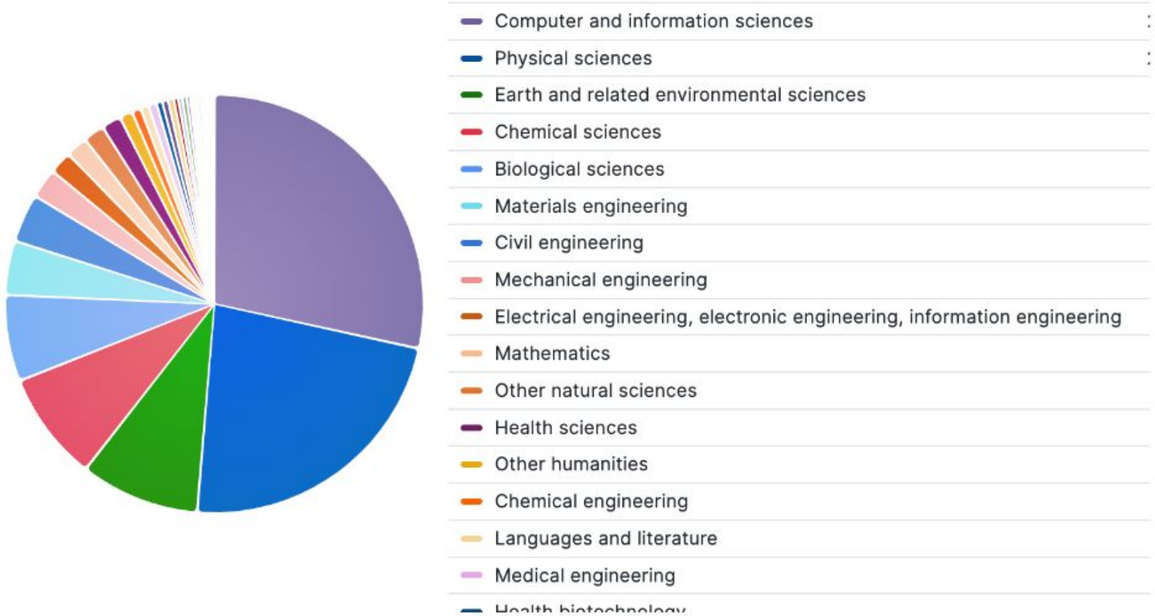
Observability

Waldur DB / Prometheus exporters can be used for building custom dashboards.

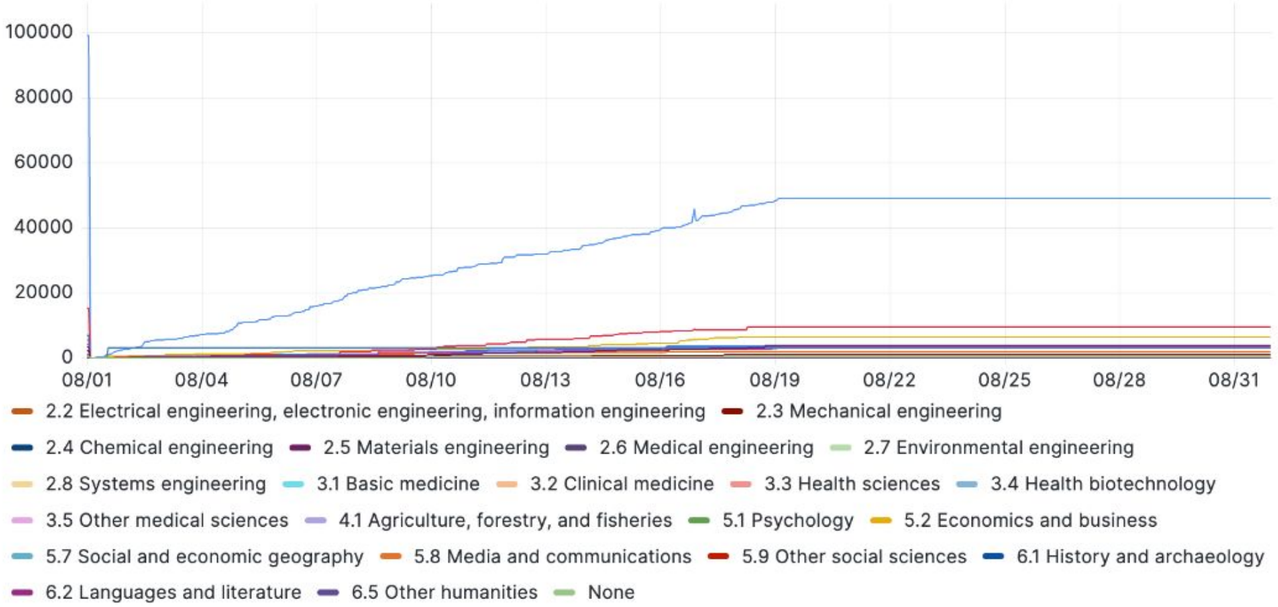
There are several mechanisms in Waldur to support collection of customised information about resources / projects for easy reporting.

OECD science code and industry code classification

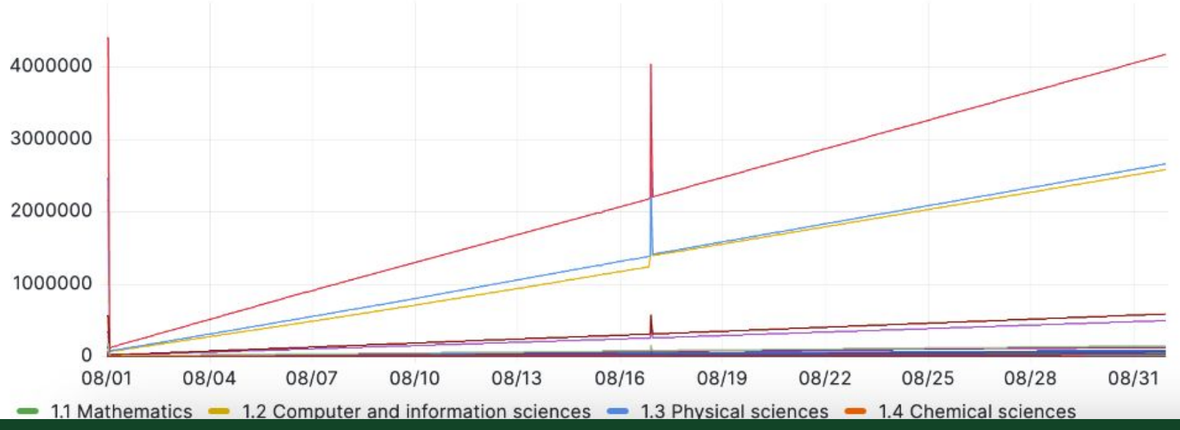
Projects per OECD code



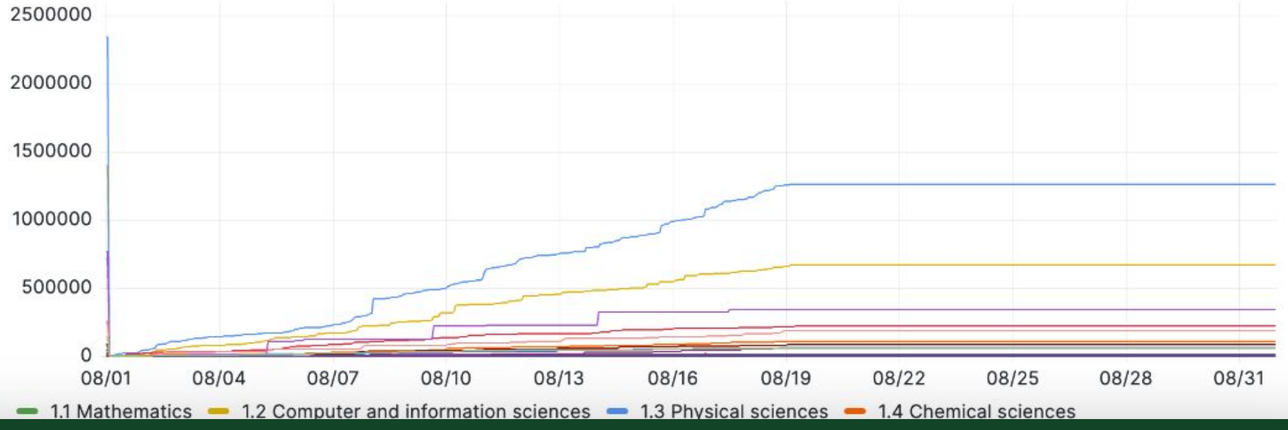
CPU k-hour usage by OECD science code



Storage TB-hour usage by OECD science code



GPU hour usage by OECD science code



Used by

EuroHPC
Joint Undertaking

EURO

neic
PUHURI

sigma2

University of
BRISTOL

rit
Riigipilv

Estonian Scientific
Computing Infrastructure

سلطنة عُمان
وزارة النقل والاتصالات
وتقنية المعلومات

CSCS
Centro Svizzero di Calcolo Scientifico
Swiss National Supercomputing Centre

1862
RĪGAS TEHNISKĀ
UNIVERSITĀTE

UNIVERSITY
OF TARTU

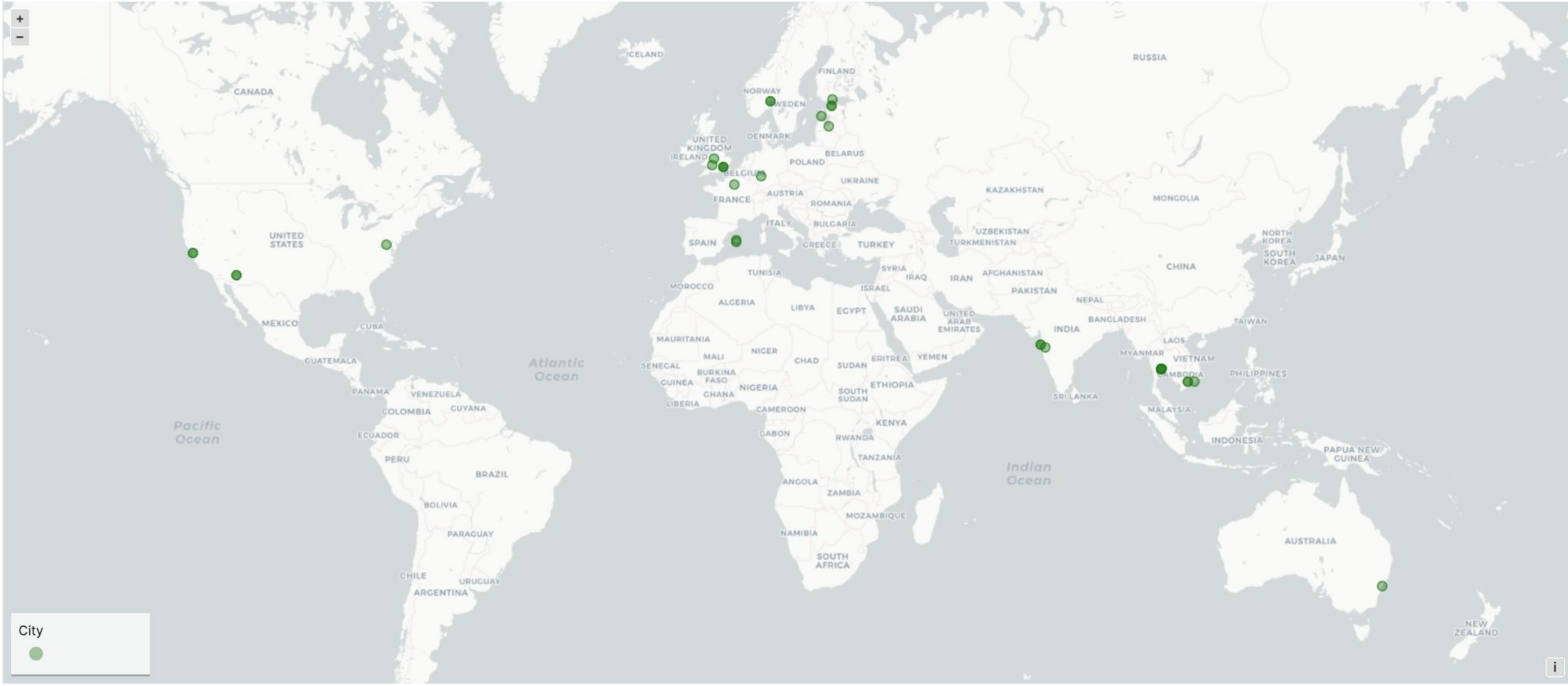
TAL
TECH

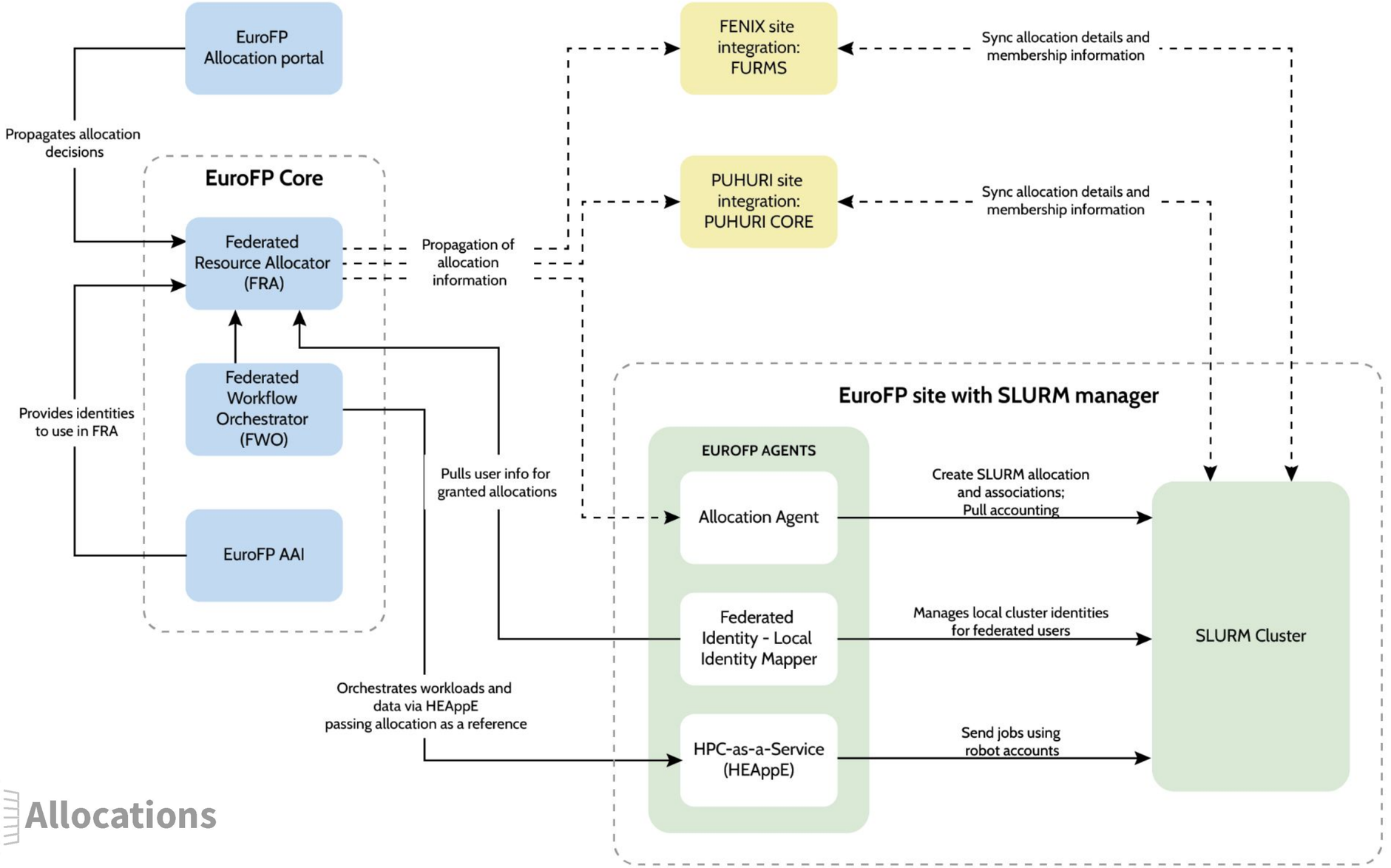
VILNIAUS UNIVERSITETAS
1579
UNIVERSITAS VILNENSIS

VSB TECHNICAL
UNIVERSITY
OF OSTRAVA
IT4INNOVATIONS
NATIONAL SUPERCOMPUTING
CENTER

...

Waldur known locations





Allocations

Draft plan of integration of HE sites with EFP for allocation management

Aggregation of service catalogues into a common gateway

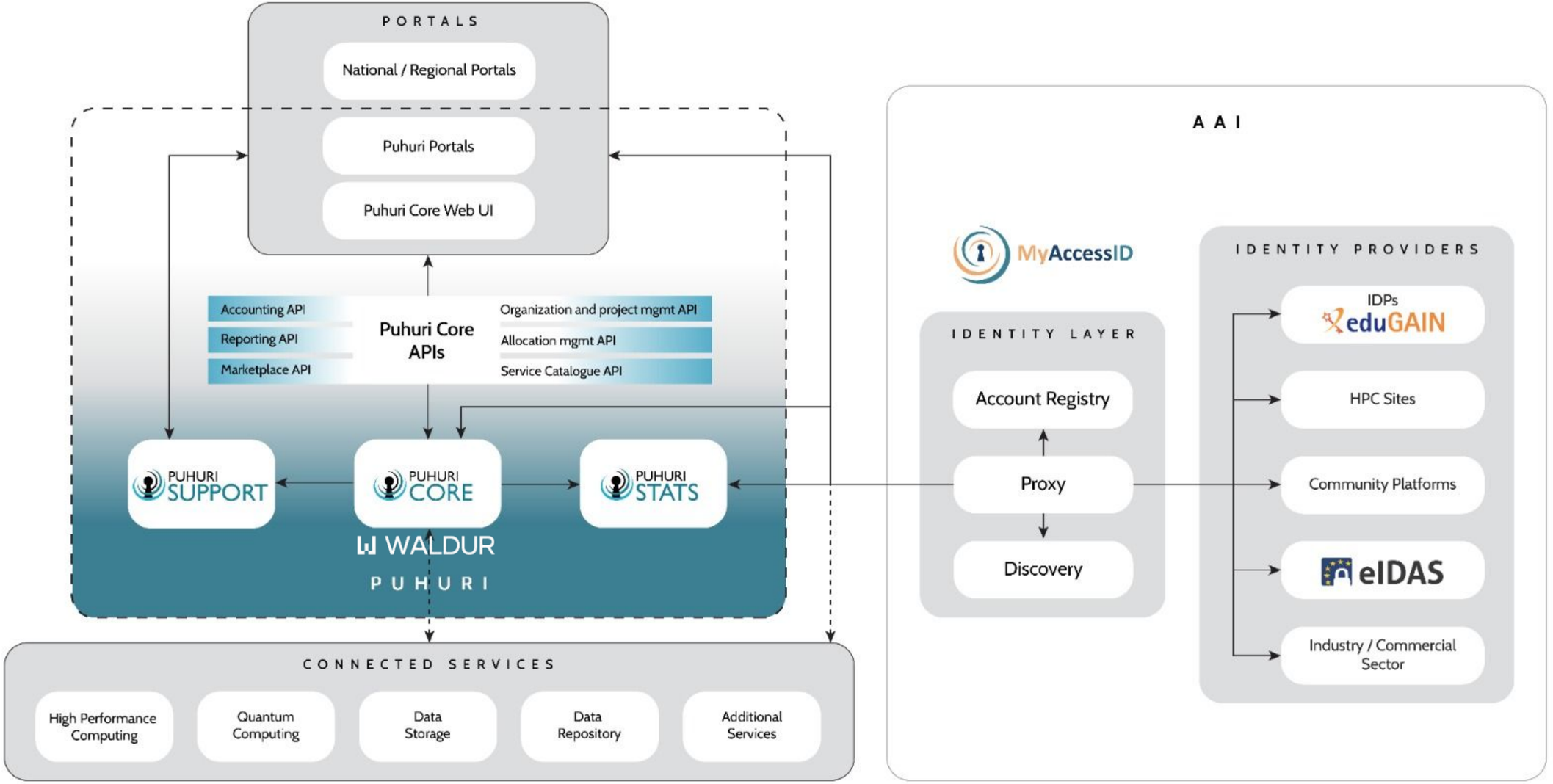
Remote offering sync

Search... | Export | Add

Remote server URL	Remote organization	Last execution	State	Enabled	Actions
https://ncc-germany.hpcservicehub.eu/api/	EuroCC HPC Service Hub	2025-02-18 19:58	OK	Yes	⋮
https://portal.enccs.se/api	NCC-Sweden	2025-02-18 19:58	OK	Yes	⋮
https://sky.sigma2.no/api	NCC-Norway	2025-02-18 19:58	OK	Yes	⋮

Remote category name	Local category name	Remote category UUID	Local category UUID
International HPC Infrastructure	Infrastructure	bf129e94-a9b4-4a73-ba13-b67aae4ee50f	ea1cee0036014d9cb1d3df271e3742b4
Consultancy algorithms	Consultancy and Expertise	1cfd0006-62e4-417a-8e4f-ced89ba5c864	65d45cc6739e4b448c01f70e6f36786f
Content Management Systems	Applications	cb03ce73-7e4c-4504-a97d-edb99774caad	6129c94c41f24ccbbc768417df161236
Technical consultancy HPC	Application Support	df70c3e2-1574-4e7b-aab6-bf91fa944db0	84e44e00fb5c465f8e493a418815a82c

https://waldur.it.auth.gr/api	EuroCC HPC Service Hub	2025-02-18 19:58	Erred	Yes	⋮
https://minu.etais.ee/api/	EuroCC HPC Service Hub	2025-02-18 19:58	OK	Yes	⋮
https://ncc-slovenia.hpcservicehub.eu/api	EuroCC HPC Service Hub	2025-02-18 19:58	OK	Yes	⋮
https://ncc-belgium.hpcservicehub.eu/api	EuroCC HPC Service Hub	2025-02-18 19:58	Erred	Yes	⋮

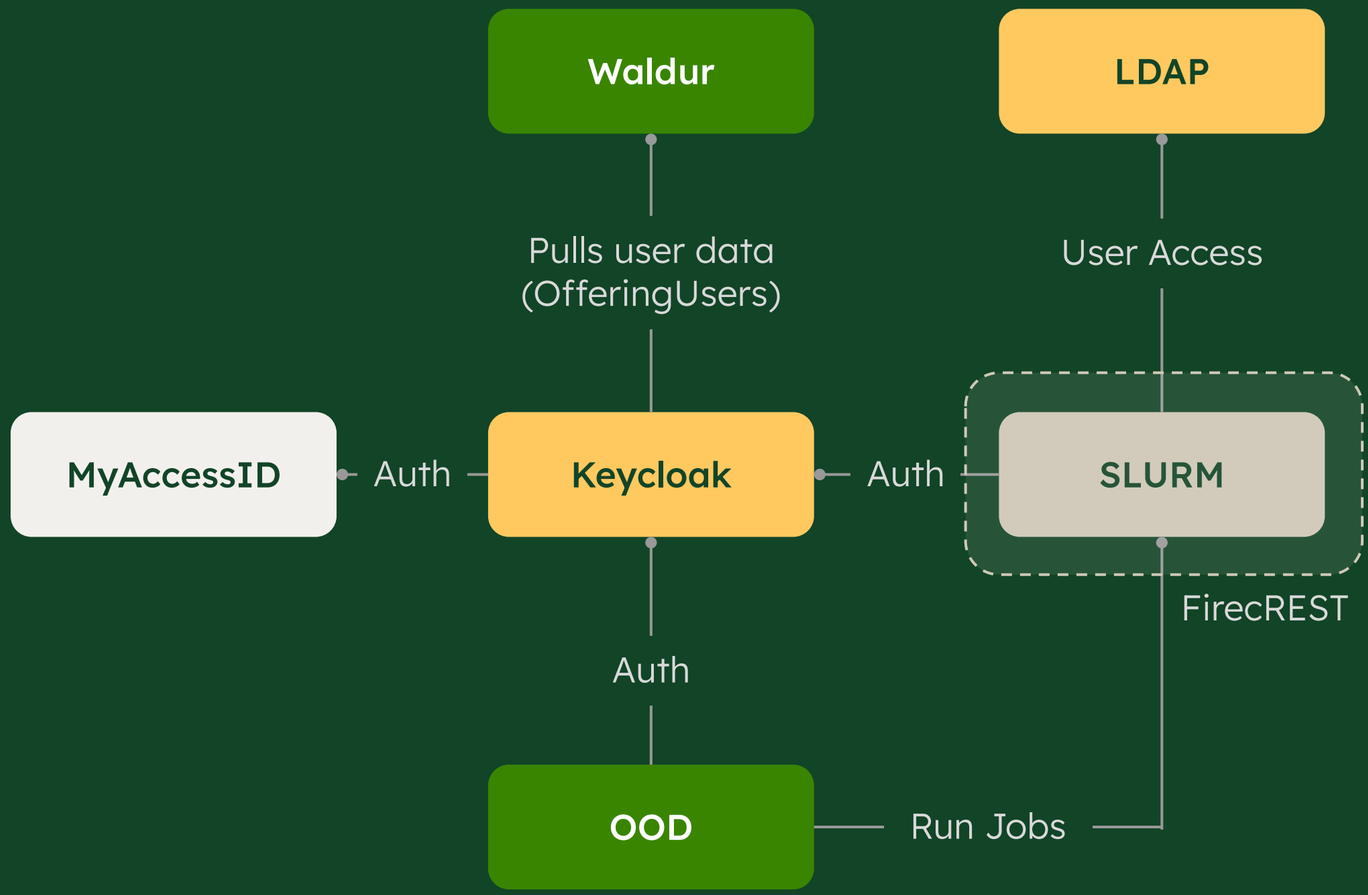


A NeIC funded project for building a service for cross-border resource allocation. Main user: EuroHPC LUMI

Zero-trust architecture

Several access interfaces to HPC infrastructure could be integrated behind a common IAM with Waldur providing user group / access management.

Example with OOD, SLURM and Firecrest.

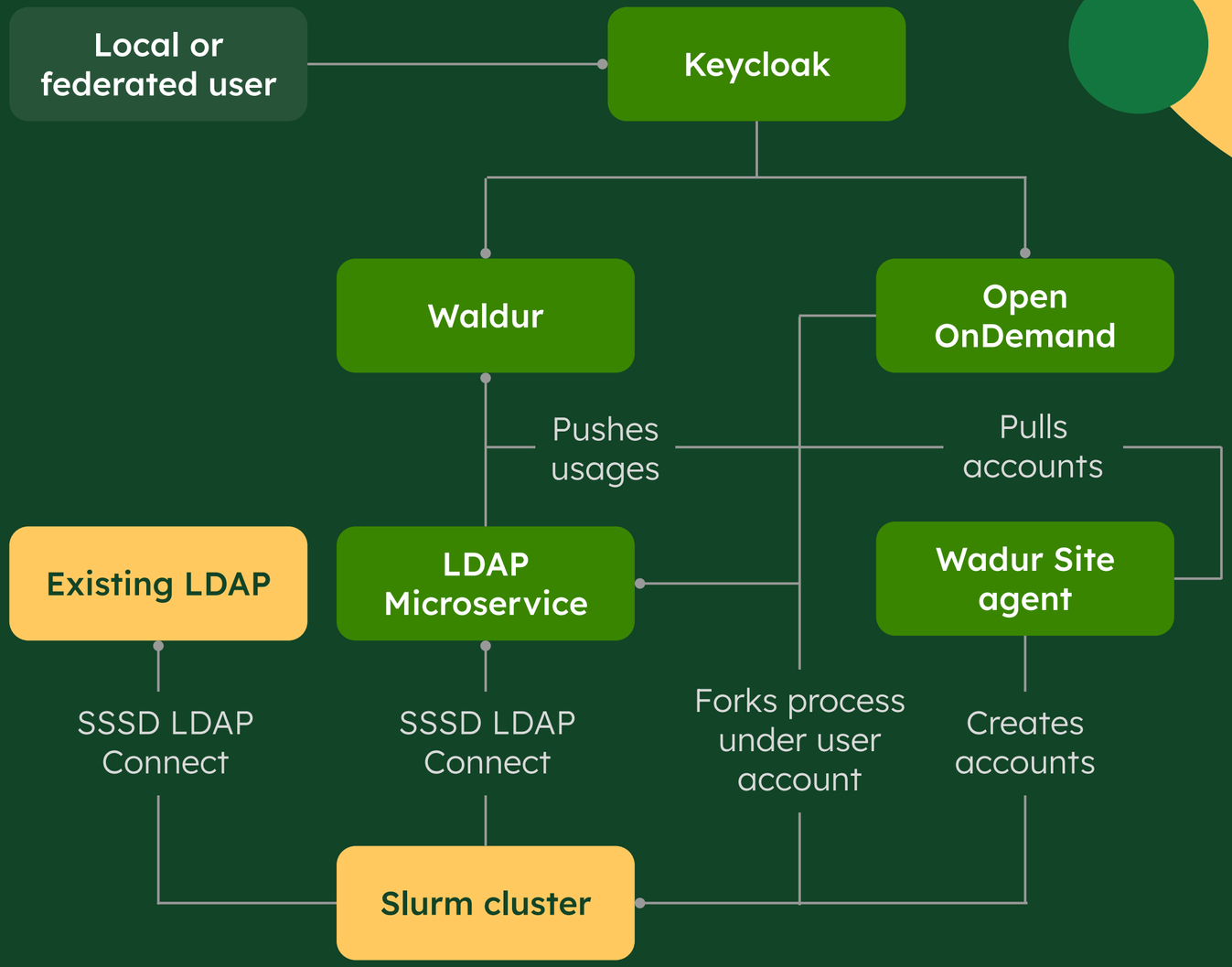


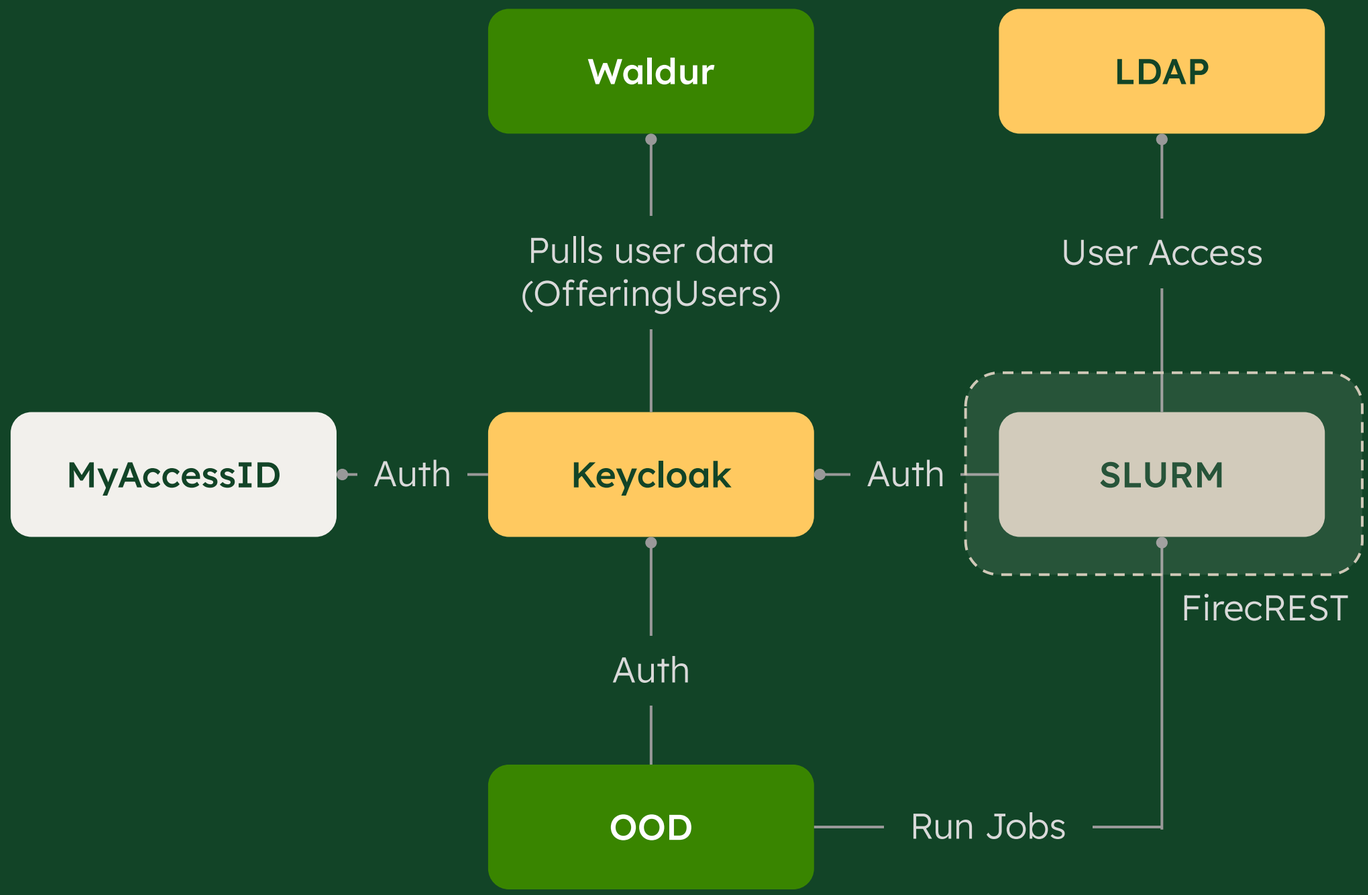
Example: Open OnDemand integration

Open OnDemand (OOD) is a web interface for HPC clusters

- Home directory access
- Job submission
- Interactive jobs
- Web console

Relies on Linux usernames and OIDC authentication



OOD + FirecREST + MyAccessID

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