Estonian E-Infrastructure Marketplace

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About ETAIS

- Estonian Scientific Computing Infrastructure (ETAIS) is a National Research Infrastructure of Estonia

- Provides infrastructure and support services to the research communities and R&D companies

- Consortium of 4 partners including largest universities in Estonia

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Estonian e-Infrastructure evolution

- Started with independent clusters
  - 2005+
- Federation of batch queues through BalticGrid I/II projects, integration with EGI
  - 2005-2011
- ETAIS I - resource upkeep, batch queue based intra-country sharing
  - 2011-2015
- ETAIS II - resource upkeep, accent on cloud computing and ease of access
  - 2017-2019

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Project members

- University of Tartu (UT)
- National Institute of Chemical Physics and Biophysics (NICPB)
- Tallinn University of Technology (TUT)
- Information Technology Foundation for Education (HITSA)

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Main users

Organizations

- Estonian Biobank
- NICPB HEP
- UT FST
- UT ISC
- EKRK
- TTU Marine Institute

Consortiums

- BBMRI ERIC
- ELIXIR
- SIME
- CLARIN ERIC
- CERN
- EGI
- Copernicus

Others

- Estonian Biocentre
- Asper Biotech AS
- Cybernetica AS
- Students
- Hackathons
- "Long tail"

Estonian Scientific Computing Infrastructure

Service offering

	HPC (~80% of resources)	Cloud (~20%)
Compute	CPU/GPU, Applications	CPU/GPU, Applications
Storage	Shared file system	Block devices
Long-term storage	Tape	Tape
Support	Application support	Application and maintenance support

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ETAIS Customers

- Represented as Organizations
- Engage in contractual relationship with ETAIS
  - ToS, including payment conditions
  - Delegates users to represent an organization
  - Delegates can manage their own team
- Can be a standalone person as well

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Business model

- Goal is to have a sustainable RI
- Service providers expose price-lists
  - Costs are partially sponsored by the national funding
- ETAIS marketplace provides accounting and show-back
  - Marketplace operations at the moment are fully nationally funded, potentially will include a "marketplace fee"
- Common terms for users of ETAIS
  - Sponsored for smaller academical consumers
  - Chargeback for larger academical consumers
  - Invoices for R&D companies

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Sample pricing for batch queue (UT HPC)

Provider details

| Details | Settings | Quotas | Projects | **Prices** |

Price package name	default rocket
Price of CPU hour	€0.01
Price of GPU hour	€0.40
Price of RAM GB	€0.002

OK

Sample pricing for cloud resources (UT HPC)

Provider details

| Details | Settings | Quotas | Projects | **Prices** |

| All categories | Trial | Small | Medium | Large |

| VPC package	Category	Max vCPU	Max RAM	Max storage	1 day ⓘ	30 days ⓘ	365 days ⓘ
CPU-intensive	Medium	64	128 GB	1.9 TB	€17.08	€512.40	€6,234.20
Generic	Medium	32	64 GB	1.9 TB	€11.88	€356.40	€4,336.20
Generic medium	Medium	20	40 GB	500 GB	€4.92	€147.60	€1,795.80
Memory-intensive	Medium	32	128 GB	1.9 TB	€14.01	€420.30	€5,113.65
Storage-intensive	Medium	64	128 GB	5.8 TB	€30.42	€912.60	€11,103.30

Marketplace design goals

- Reduce complexity of finding and provisioning IT services allowed for consumption

- Provide a workspace for collaboration on IT resources for the research communities and R&D companies

- Integrate with billing and invoicing systems for show/chargeback

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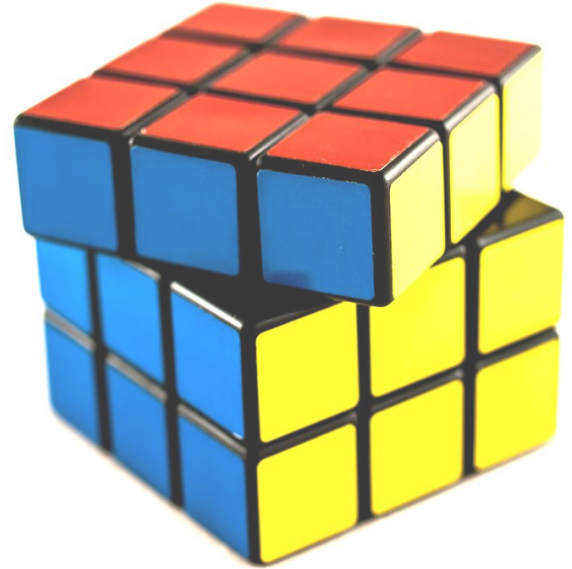
Waldur

- Open-source platform for hybrid resource management (MIT)
- Development is led by Estonia company OpenNode
- Used as a self-service for Oman and Estonian Government Clouds (TRL9)
- Integrates with billing and invoicing systems for show/chargeback
- Increases sustainability - ETAIS joined as a development partner

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Dashboard

Organization workspace / **Dashboard**
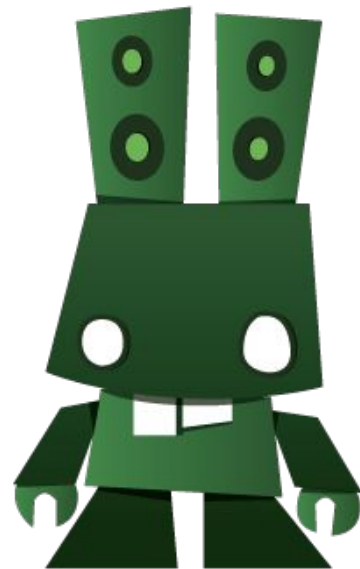
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IT Specialist ˅

- **Dashboard**
- Providers   7
- Projects   1
- Service store
- Analytics   ˂
- Audit logs
- Team   7
- Accounting
- Manage

Total cost

€870.48

24%⬆

Batch CPU usage, hours

0

0%⚡

Batch GPU usage, hours

0

0%⚡

Batch RAM usage, GB

0

0%⚡

Block device count

7

0%⚡

Private clouds

3

0%⚡

Projects

1

0%⚡

Team size

7

0%⚡

Virtual machines

UT Software Engineering group ⌄

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- Dashboard
- Providers **5**
- Projects **2**
- Service store
- Analytics ‹
- Audit logs
- Team **4**
- Accounting
- Manage

Projects

Organization workspace / **Projects**

Show 10 ⇅ entries

Search [   ]   ⬇Export as ⌄   ＋Add project   ⟳Refresh

Showing 1 to 2 of 2 entries

Name	Description	Creation date	VMs	Storage	Private clouds	Allocations	Estimated cost	Actions
Conference web-sites	Hosting of websites for...	2017-06-05 16:39	2	1	1	0	€71.30	👁 Details 🗑 Remove
My first project	testing	2017-03-22 21:31	0	0	0	0	€0.00	👁 Details 🗑 Remove

Previous 1 Next

Project details

General	**Policies**	Providers

Required certifications ❓

Select certifications

Sensitive data
ISKE M
ETAIS Core

FreeIPA group quota

Cost threshold ❓

0   €

Estimated cost for current month: €71.30

☐ **Disable provisioning when threshold is reached.**

Update policies

OK

Service store

Infrastructure

🔍 Search by name

Virtual machines

Provision virtual machines (VMs) in available Providers.

Select

Private clouds

Purchase bulk resource as Virtual Private Clouds (VPC).

Select

Block storage

Provision persistent storage volumes in available Providers.

Select

Batch processing

Create an allocation for computations in batch resources.

Select

Cancel

Service store

Projects

Select project ▼   **+ Add project**

IaaS | **Applications**

WordPress
WordPress is a free and open-source content management system (CMS) based on PHP and MySQL.
Select

Rocket.Chat
An open-source web chat that runs fully under your control
Select

OwnCloud
ownCloud is an open source, self-hosted file sync and share app platform. Access & sync your files, contacts, calendars & bookmarks
Select

VÕSA
Open-source study environment for system administration and cyberdefense trainings.
Select

❓ I want another service   Cancel

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Infrastruktuur

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- Dashboard
- Providers — 8
- Projects — 2
- Service store
- Analytics
- Audit logs
- Team — 3
- Accounting
- Manage

Provider details

| Details | Settings | Quotas | Projects | Prices |

Name   UT HPC (Public)

Type   OpenStack

Homepage   http://hpc.ut.ee

Certifications   ISKE M

Physical locations
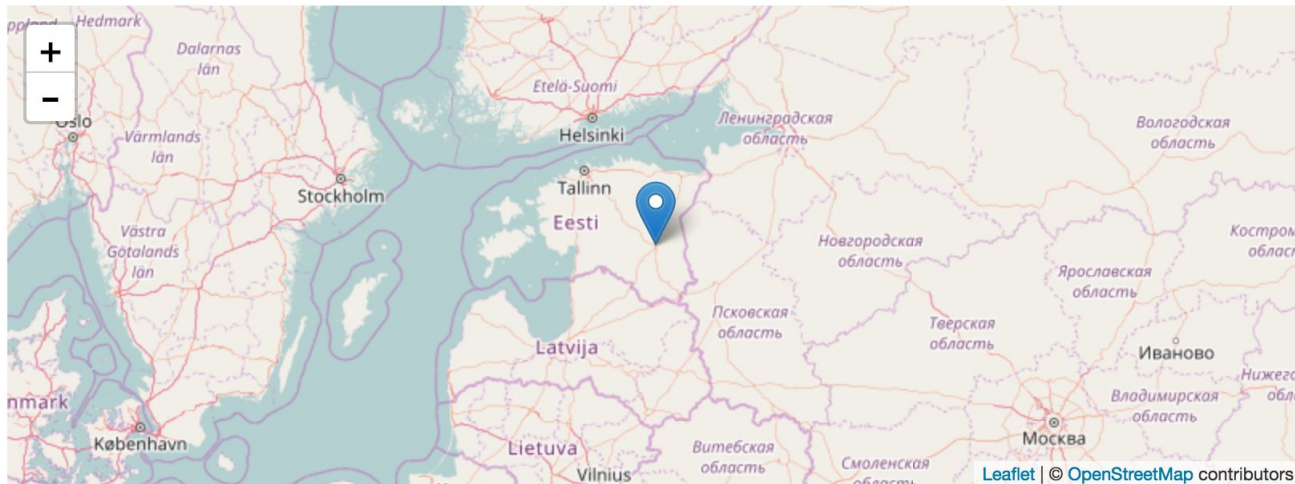
Leaflet | © OpenStreetMap contributors

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- **Dashboard**
- **Service store**
- **Resources** ‹
  - 🖥 **Virtual machines** `1`
  - ☁ **Private clouds** `6`
  - 🖴 **Storage** `2`
- 🔔 **Audit logs**
- 👥 **Team** `0`

Private clouds

Infrastructure for open and big data processing

Project workspace / **Private clouds**

Select provider

UT HPC (Campus)

Details 👁   Select →

UT HPC (Public)

Details 👁   Select →

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Infrastruktuur

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- Dashboard
- Service store
- Resources   ˂
  - Virtual machines   1
  - Private clouds   6
  - Storage   2
- Audit logs
- Team   0

Select Virtual Private Cloud package

| All categories | Trial | Small | Medium | Large |

VAT is not included.

VPC package	Category	Max vCPU	Max RAM	Max storage	1 day ⓘ	30 days ⓘ	365 days ⓘ
◯ Starter	Small	10	20 GB	200 GB	€2.30	€69.00	€839.50
◯ Generic medium	Medium	20	40 GB	500 GB	€4.92	€147.60	€1,795.80
◯ Large infrastructure	Large	60	256 GB	4.8 TB	€30.96	€928.80	€11,300.40

Cancel   Reset   Select

Checkout summary

No items yet.

VPC package   Show choices

Description

Internal network mask
(CIDR)   192.168.   42   .0/24

Internal network allocation
pool   192.168.42.10 — 192.168.42.200

Private clouds

Infrastructure for open and big data processing

Project workspace / Resources / **Private clouds**

Show 10 entries

Search

⬇ Export as ▾ ✚ Add private cloud ⟳ Refresh

Showing 1 to 6 of 6 entries

Name	Provider	State	Actions
g48-vpc-1	UT HPC (Public)	OK	Actions ▾
g48-vpc-2	UT HPC (Public)	OK	Actions ▾
g48-vpc-3	UT HPC (Public)	OK	Actions ▾
g48-vpc-4	UT HPC (Public)	OK	Actions ▾
rooftop	UT HPC (Public)	OK	Actions ▾
texta.ee	UT HPC (Public)	OK	Actions ▾

Previous 1 Next

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▦ Dashboard

🛒 Service store

⧉ **Resources** ⌄

   🖥 Virtual machines 1

   ☁ **Private clouds** 6

   🖴 Storage 2

🔔 Audit logs

👥 Team 0

texta.ee

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- ▦ Dashboard
- 🛒 Service store
- 🗐 Resources ‹
  - 🖥 Virtual machines `1`
  - ☁ Private clouds `6`
  - 🖴 Storage `2`
- 🔔 Audit logs
- 👥 Team `0`

OpenStack Tenant

Actions ▾

Edit	
Request direct access	
❔ Synchronise	
Change VPC package	
❗ Destroy	

State: `OK`
Provider: UT HPC (Public)
Created: 3 months ago, 2017-05-04 21:19

UUID: 11c8eb4153a34e01b8d5e2d0e26fb...
Backend ID: 011eb459e8854acb92ccdbc520a0c...
Package: Large infrastructure / Large (60 vCP... storage)

| Audit log | Networks | Security groups | Floating IPs | **Quotas** |

Floating IP count:	1 of 50	Snapshots size:	0 of ∞
Instances count:	1 of 30	Storage:	251 GB of 4.8 TB
Network count:	1 of 10	Subnet count:	1 of 10
RAM:	64 GB of 256 GB	vCPU count:	16 of 60
Security group count:	6 of 100	Volumes count:	2 of 50
Security group rule count:	11 of 100	Volumes size:	251 GB of ∞
Snapshots count:	0 of 50		

Hackathons ⌄

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- ▦ Dashboard
- 🗄 Providers **8**
- 🔖 Projects **2**
- 🛒 Service store
- 📊 Analytics ‹
- 🔔 Audit logs
- 👥 Team **3**
- 📄 Accounting
- 🔧 Manage

Team

Organization workspace / **Team**

| **Users** | Invitations | Permissions log |

Show [10 ⇕] entries

Search [   ]   ⬇ Export as ⌄   ⟳ Refresh
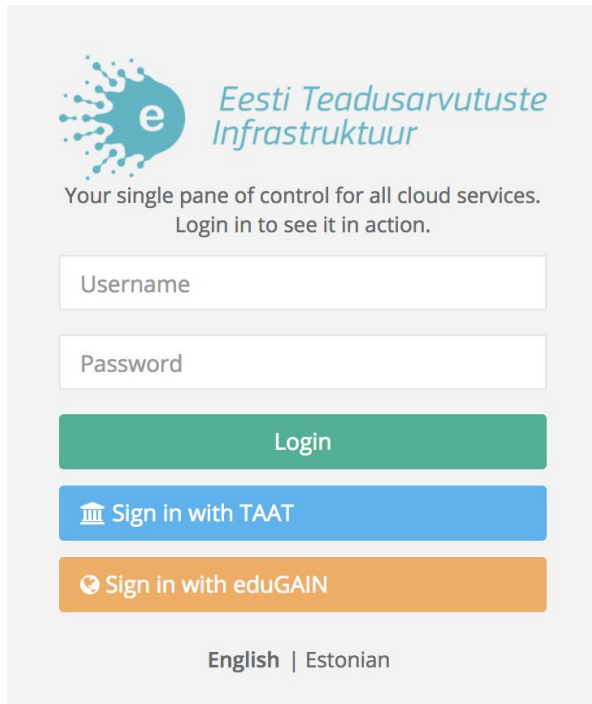
Showing 1 to 3 of 3 entries

Member	E-mail	Owner	Project manager in:	System administrator in:	Actions
Anna Leontjeva	anna.leontjeva@ut.ee	▬	UT Social Impact Data Hack (Autumn 2017)	No projects are assigned to this role.	👁 Details ✏ Edit 🗑 Remove
Ivar Koppel	ivar.koppel@ut.ee	✔	No projects are assigned to this role.	No projects are assigned to this role.	👁 Details ✏ Edit 🗑 Remove
Victor Mireyev Tester	victor.mireyev2@gmail.com	✔	No projects are assigned to this role.	No projects are assigned to this role.	👁 Details ✏ Edit 🗑 Remove

Previous   **1**   Next

Technical overview

- Open-source (MIT license)
- REST API server (Python/Django)
  - API-first design approach
  - Relies on ElasticSearch, Redis, Postgresql, Celery
  - Integrates with Atlassian ServiceDesk, Zabbix, Grafana
- Frontend portal (Angular/React)
- Packaged into RHEL7 RPMs
- Docker/CaaS packaging in progress
- Code resides on Github

Eesti Teadusarvutuste Infrastruktuur

Your single pane of control for all cloud services. Login in to see it in action.

Username

Password

Login

🏛 Sign in with TAAT

🌐 Sign in with eduGAIN

English | Estonian

Estonian Scientific Computing Infrastructure

Marketplace Status

- Deployment (Done) - https://minu.etais.ee
- Integration with TaaT/eduGain (Done)
- Marketplace customized to match ETAIS needs (In QA)
- Beta-testing (In progress - you are welcome to join!)
- Integration of service providers (In progress)
- Payment processing (Pending, ETA 12.2017)
- Production (Pending, ETA 1.2018)

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Roadmap

- Integration of data management services
  - Improving on FAIR principles
  - Data registration services
  - Data policy management
- Experts-as-a-Service
  - Ability to request support for a specific action (application packaging, data curation, setup of conference web-sites, operations, etc)
- Cross-border integration of service providers
  - Initial discussions under way
  - Integration with service catalogues / federated marketplaces
- Organization theming
  - Allow to set organization domain to provide a more domain-specific

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Thanks!

Live demo is available at your convenience

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