

Услугите на EOSC, достъпни от каталога на NI4OS-Europe

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ИИКТ-БАН



- ❑ Каталогът за услуги на NI4OS-Europe
- ❑ Видове услуги
- ❑ Примери за услуги от NI4OS-Europe
 - ❑ NI4OS Data Discovery Service
 - ❑ FINKI Cloud (Openstack)
 - ❑ Data analysis service
- ❑ Достъп до суперкомпютъра Авитохол през NI4OS-Europe

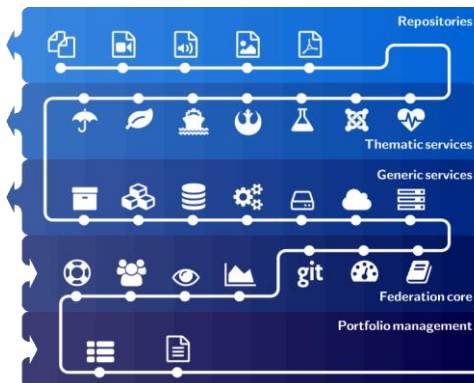
Каталогът на услугите на NI4OS-Europe

Включва доставчиците на услуги – партньори в проекта и други

Представя наличните услуги и отличава тези, които са интегрирани – onboarded

Йерархична организация на услугите

- ядро (мониторинг , отчитане на употребата, AAI);
- общи услуги (HPC, клауд, съхранение и др.);
- тематични услуги;
- хранилища



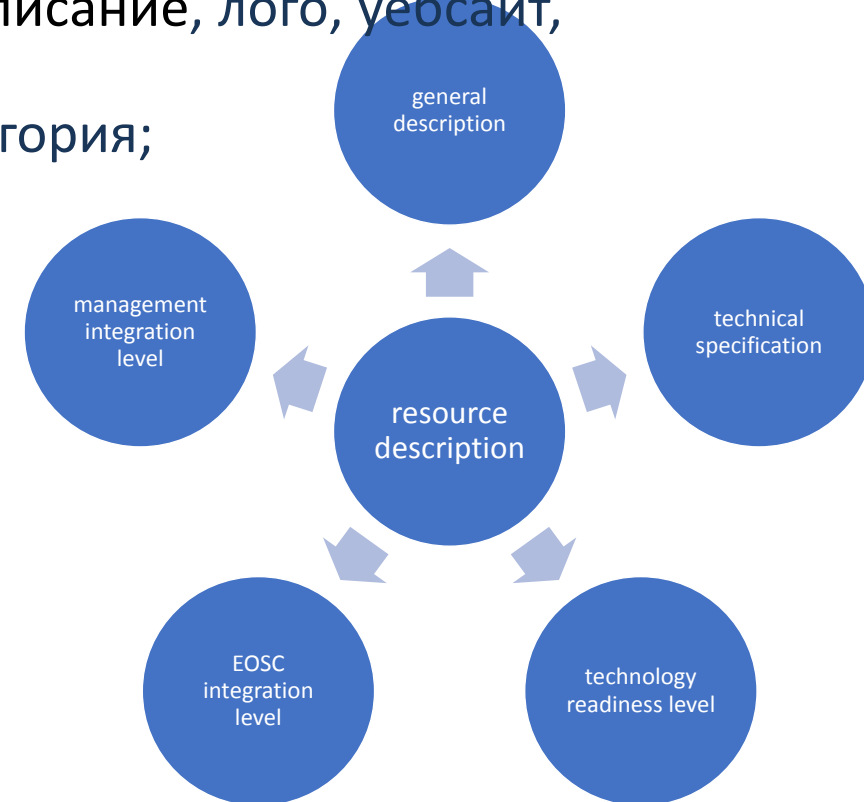
Различни аспекти на описанието на даден ресурс

□ Общи описание

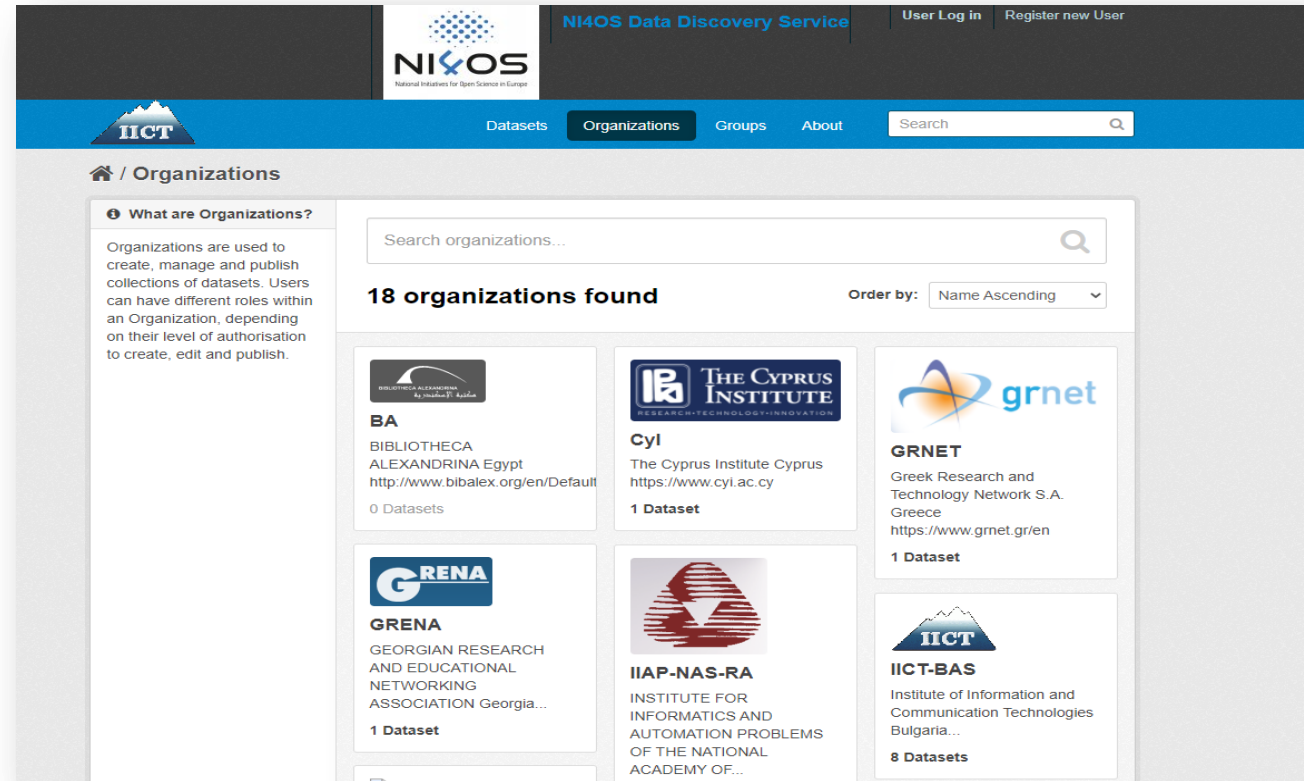
- Основна информация като името на услугата и крайната ѝ **дестинация (endpoint)**;
- Маркетингова информация като слоган/акроним, описание, лого, уебсайт, таргетирани общности;
- Информация за класификация, научна област и категория;
- Информация за местоположението и езика;
- Иноформация за доставчика на услугата.

□ Техническа спецификация

- Ниво на технологична готовност (TRL)
- Ниво на интеграция с EOSC (EIL)
- Ниво на интеграция на управлението (MIL)



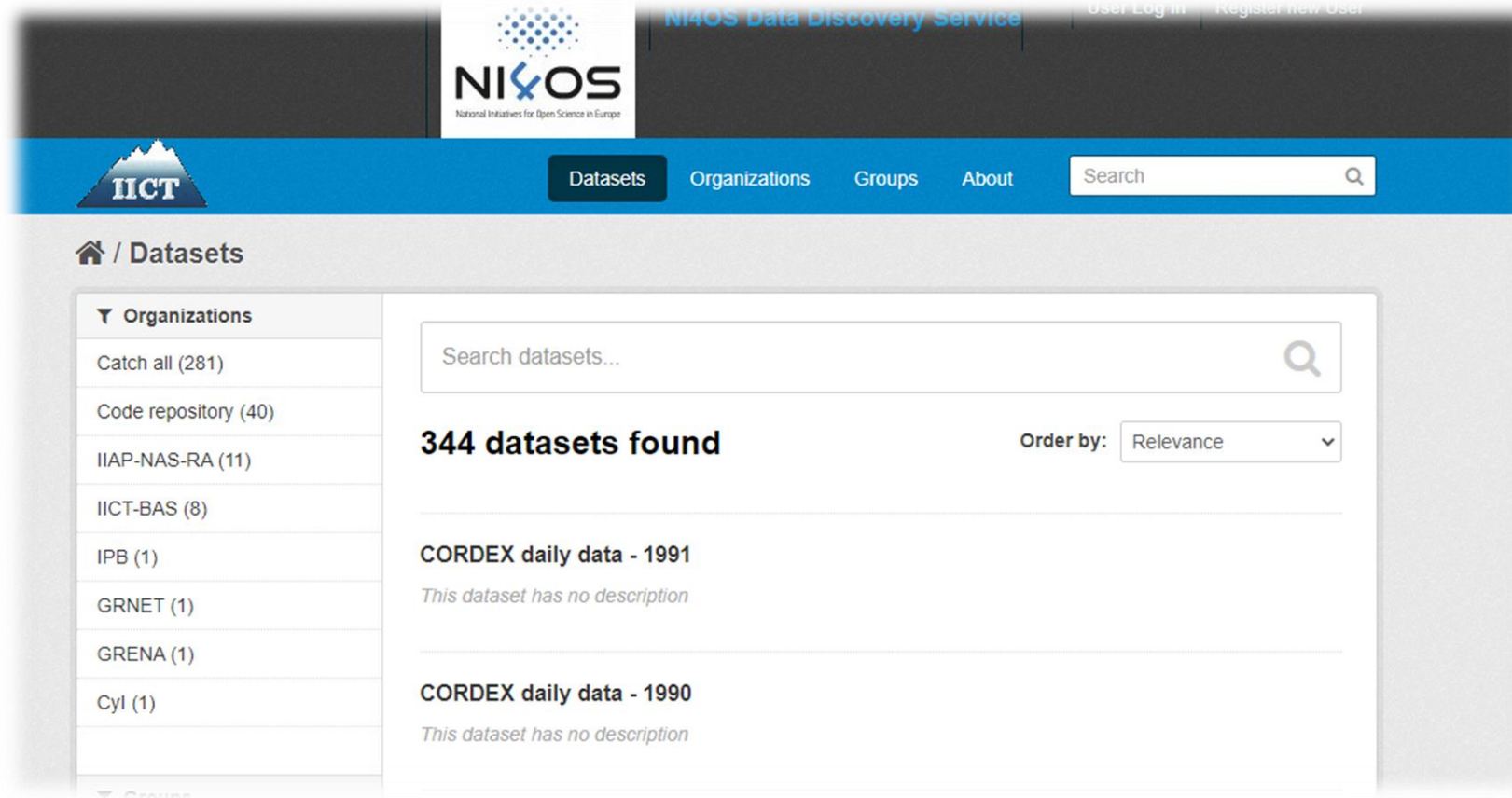
- ❑ <https://search.vi-seem.eu/>
- ❑ Услугата се поддържа от ИИКТ-БАН. Осигурява гъвкаво търсене за откриване на данни. Това е мощна система за управление на набори от данни, която осигурява публикуване, споделяне, търсене и може да използва почти всеки тип данни и метаданни.



The screenshot displays the NI4OS Data Discovery Service interface. At the top, there is a navigation bar with the NI4OS logo, the service name, and links for 'User Log in' and 'Register new User'. Below this is a secondary navigation bar with 'Datasets', 'Organizations', 'Groups', and 'About' tabs, along with a search box. The main content area is titled 'Organizations' and includes a search bar for organizations, a dropdown menu for 'Order by: Name Ascending', and a list of 18 organizations found. The organizations listed are:

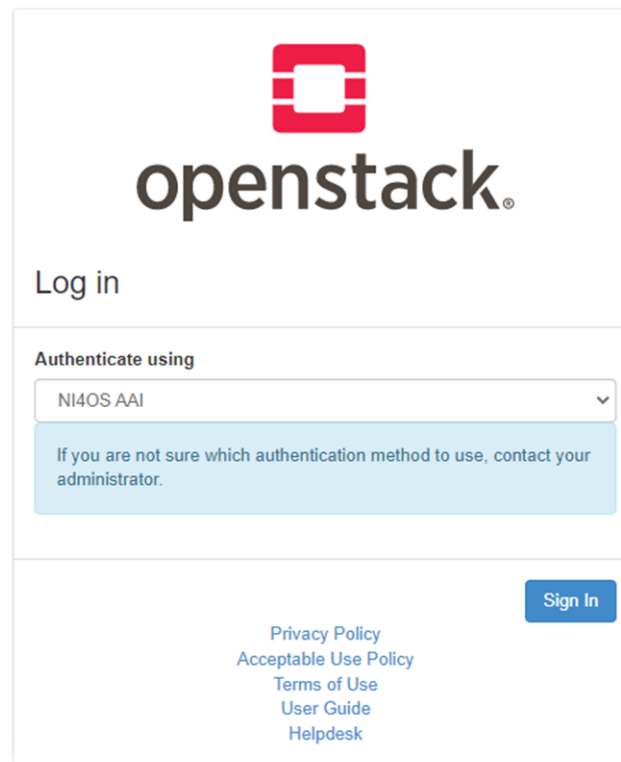
- BA**: BIBLIOTHECA ALEXANDRINA Egypt, http://www.bibalex.org/en/Default, 0 Datasets
- CyI**: The Cyprus Institute Cyprus, https://www.cyi.ac.cy, 1 Dataset
- GRNET**: Greek Research and Technology Network S.A. Greece, https://www.grnet.gr/en, 1 Dataset
- GRENA**: GEORGIAN RESEARCH AND EDUCATIONAL NETWORKING ASSOCIATION Georgia..., 1 Dataset
- IIAP-NAS-RA**: INSTITUTE FOR INFORMATICS AND AUTOMATION PROBLEMS OF THE NATIONAL ACADEMY OF...
- IICT-BAS**: Institute of Information and Communication Technologies Bulgaria..., 8 Datasets

NI4OS Data Discovery Service



The screenshot shows the NI4OS Data Discovery Service website. At the top, there is a navigation bar with the NI4OS logo, the text "NI4OS Data Discovery Service", and links for "User Log in" and "Register New User". Below this is a blue navigation bar with the IICT logo, a search bar, and menu items for "Datasets", "Organizations", "Groups", and "About". The main content area is titled "Home / Datasets" and features a sidebar with a list of organizations and their dataset counts: Catch all (281), Code repository (40), IIAP-NAS-RA (11), IICT-BAS (8), IPB (1), GRNET (1), GRENA (1), and Cyl (1). The main search area contains a search bar with the text "Search datasets...", a search button, and a dropdown menu for "Order by: Relevance". Below the search bar, two dataset entries are displayed: "CORDEX daily data - 1991" and "CORDEX daily data - 1990", both with the note "This dataset has no description".

- ❑ OpenStack е безплатна, отворена стандартна платформа за изчислителни облаци.
- ❑ Инсталация на Openstack във Факултета по компютърни науки и инженерство, УКИМ.



openstack®

Log in

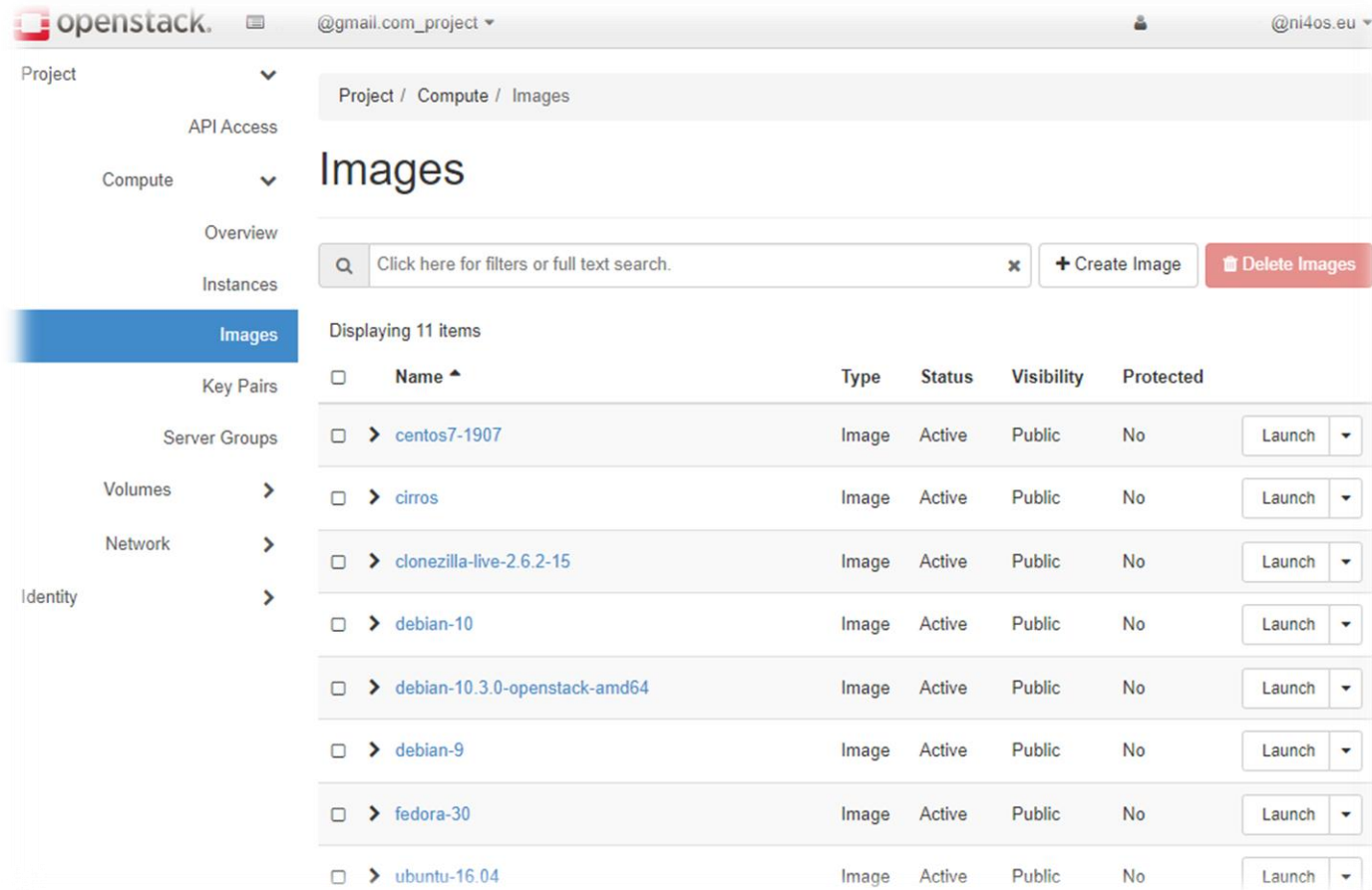
Authenticate using

NI4OS AAI

If you are not sure which authentication method to use, contact your administrator.

Sign In

[Privacy Policy](#)
[Acceptable Use Policy](#)
[Terms of Use](#)
[User Guide](#)
[Helpdesk](#)



openstack. @gmail.com_project @ni4os.eu

Project / Compute / Images

Images

Click here for filters or full text search. [+ Create Image](#) [Delete Images](#)

Displaying 11 items

<input type="checkbox"/>	Name ^	Type	Status	Visibility	Protected	
<input type="checkbox"/>	> centos7-1907	Image	Active	Public	No	Launch ▾
<input type="checkbox"/>	> cirros	Image	Active	Public	No	Launch ▾
<input type="checkbox"/>	> clonezilla-live-2.6.2-15	Image	Active	Public	No	Launch ▾
<input type="checkbox"/>	> debian-10	Image	Active	Public	No	Launch ▾
<input type="checkbox"/>	> debian-10.3.0-openstack-amd64	Image	Active	Public	No	Launch ▾
<input type="checkbox"/>	> debian-9	Image	Active	Public	No	Launch ▾
<input type="checkbox"/>	> fedora-30	Image	Active	Public	No	Launch ▾
<input type="checkbox"/>	> ubuntu-16.04	Image	Active	Public	No	Launch ▾

- Услугата за анализ на данни или клъстер PARADOX Hadoop се състои от един node, който изпълнява мениджъра на ресурси YARN, и три допълнителни сървъра за обработка на данни.

PARADOX Hadoop user guide

This article gives a tutorial introduction to [MapReduce](#) parallel computing approach, and how it can be done on SCL's hadoop cluster.



Introduction

The usual way in which we create parallel programs for PARADOX cluster is using MPI. The problems we solve that fit well with that approach, are the ones where the main bottleneck is processing power. Complexity of the simulation or a model being executed is much bigger than the relative size of dataset it runs on. However, you may have experienced problems where the sheer size of data is so large that filesystem access times become the dominant factor in the total execution time.

□ Високопроизводителна изчислителна сиситема – АВИТОХОЛ

AVITOHOL

Basic information

Resource organization

Institute of Information and Communication Technologies, Bulgarian Academy of Sciences

Service providers

Institute of Information and Communication Technologies, Bulgarian Academy of Sciences

Web page

<http://www.hpc.acad.bg/avitohol/>

Marketing information

Description

The supercomputer Avitohol was at 331st place in the TOP 500 list of supercomputers. It is built with HP Cluster Platform SL250S GEN8 (150 servers), Intel Xeon E5-2650 v2 8C 2.6GHz CPUs (300 CPUs), non-blocking InfiniBand FDR, 300 Intel Xeon Phi 7120P co-processors. It provides 412 TFlops of performance for diverse scientific and industrial applications. Users from science and industry with substantial computational needs use it to achieve their results faster and to solve bigger problems that are beyond the reach of ordinary clusters.

Tagline

Avitohol supercomputer

Logo

<https://catalogue.ni4os.eu/img/Avitohol.jpg>

All resources

On-boarded resources



<http://www.hpc.acad.bg/bg/avitohol/>

АВИТОХОЛ

Високопроизводителна изчислителна сиситема – [Авитохол](#) в списъка ТОП500 (388-мо място, ноември 2015).



Общ преглед на системата

АВИТОХОЛ се състои от 150 сървъра от платформата HP Cluster SL250S GEN8, всеки с по 2 Intel Xeon E2650v2 процесора и 2 копроцесора Intel Xeon Phi 7120P.

Местоположение: ИИКТ-БАН/Авитохол

Производител: Hewlett-Packard

Брой ядра: 20700

Свързаност: FDR InfiniBand

- Два типа услуги за достъп до Авитохол
 - Директен НРС достъп, при което се получава и достъп до инсталирания софтуер, локалната услуга за съхранение на данни и други
 - Облачен достъп, при което потребителите са отговорни за инсталацията и стартирането на софтуера
-

Суперкомпютърът Авитохол

Servers	150 x Dual CPU HP ProLiant SL250s Gen8
CPUs	Intel Xeon E5-2650v2 2.6GHz – 8 cores /16 HT
RAM	64 GB per node
Coprocessors	300 x Intel Xeon Phi 7120P(x86) - 61 cores / 244 HT
Total CPUs	2400 cores/4800 HT + 18300 cores/ 73200 HT
Total RAM	14400 GB (9600 + 4800)
Disk Storage	100 TB
Interconnect	Non-blocking FDR Infiniband
Latency	1.1 μ s
Bandwidth	56 Gbps



Суперкомпютърът Авитохол

Peak Performance CPU	50 Tflop/s
Peak Performance Accelerators	362 Tflop/s
Total Peak Performance	412 Tflop/s
Real Measured Performance	264 Tflop/s
Max Power	250 kW



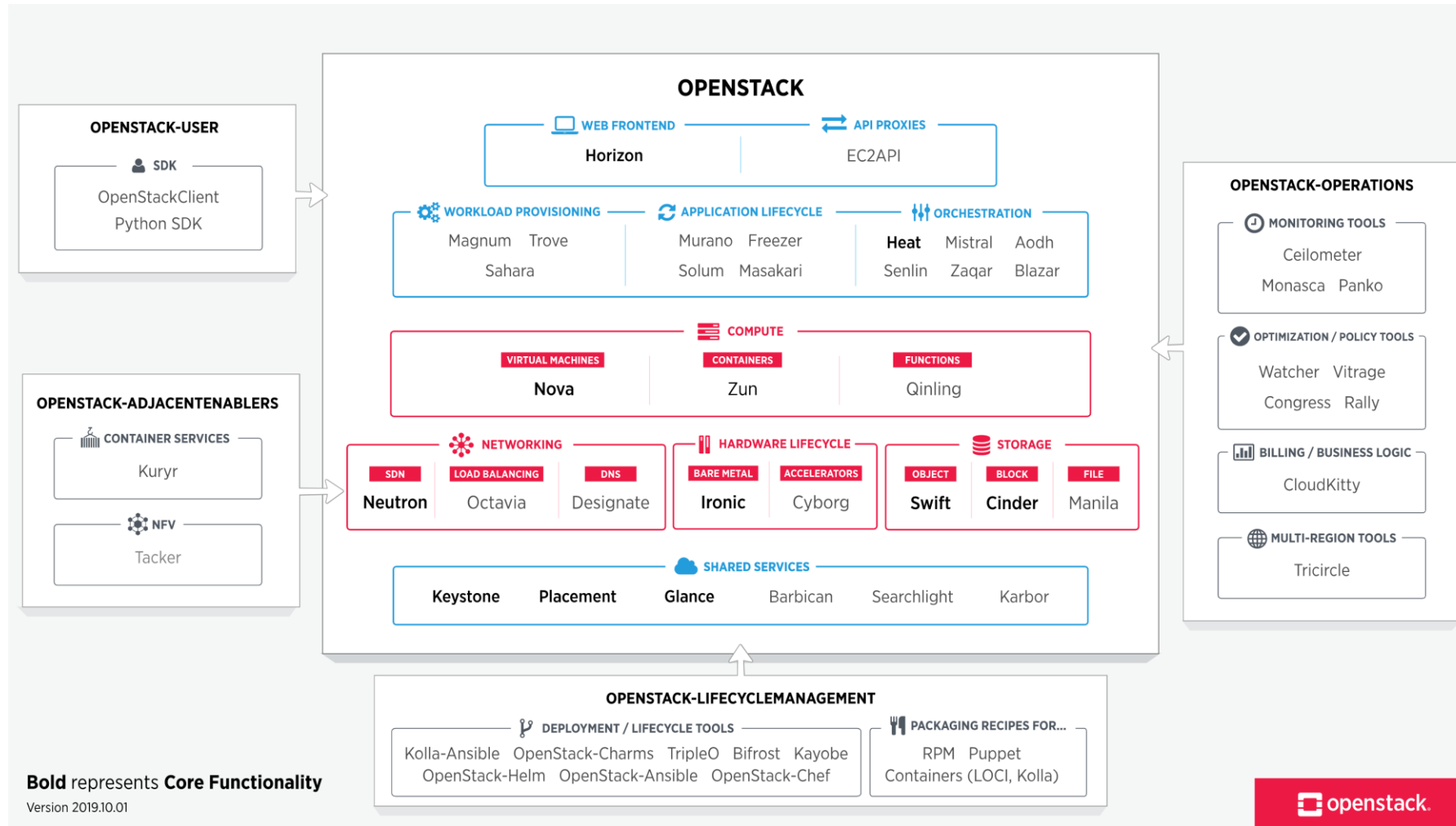
The system consists of 4 dual racks of type HP MCS 200. Each one provides power and cooling for up to 50 kW of equipment, cooled by water. Last on Top500 List on 389 place (Nov 2015) <http://www.top500.org/system/178609>

Xeon Phi accelerators

- ❑ x86 Architecture
- ❑ 61 cores
- ❑ 244 threads
- ❑ 512 bit SIMD
- ❑ 16 GB RAM
- ❑ 352 GB/s bandwidth
- ❑ Works synergistically with Intel Xeon processors
- ❑ Give about 90% of the theoretical performance



Облачна услуга на Авитохол



Import Image via CLI

Example: Obtain CentOS 7 Image from internet and upload it into Glance image store

```
./keystonerc

# Download cloud-init enabled CentOS image
curl -L \
http://cloud.centos.org/centos/7/images/CentOS-7-x86\_64-GenericCloud.qcow2 \
--output CentOS-7-x86_64-GenericCloud.qcow2

# Import image into OpenStack (Glance service)
openstack image create --public \
--disk-format qcow2 --container-format bare \
--file /nfs/tmp/CentOS-7-x86_64-GenericCloud.qcow2 CentOS-7-x86_64-GenericCloud
```

Облачна услуга върху АВИТОХОЛ

Import Image via CLI - Result

Field	Value
checksum	160aa274e7a69f2edb50e2d89f54270b
container_format	bare
created_at	2020-01-09T21:46:44Z
disk_format	qcow2
file	/v2/images/2e825408-ba44-47ce-a2b9-d7a0f9db1ef9/file
id	2e825408-ba44-47ce-a2b9-d7a0f9db1ef9
min_disk	0
min_ram	0
name	CentOS-7-x86_64-GenericCloud
owner	e1781b8a64924b6f939235a66b3e1ee6
protected	False
schema	/v2/schemas/image
size	942407680
status	active
tags	
updated_at	2020-01-09T21:46:57Z
virtual_size	None
visibility	public

Облачна услуга върху АВИТОХОЛ

Navigate to Project > Compute > Images

- Create New Image

- Browse filesystem image (ISO, QCOW2, etc.)

openstack. demo admin

Project / Compute / Images

Images

Click here for filters.

+ Create Image Delete Images

Owner	Name ^	Type	Status	Visibility	Protected	Disk Format	Size
admin	cirros-0.3.2-i386-disk	Image	Active	Public	No	VMDK	16.31 MB

Create Image

Image Details *

Metadata

Image Details

Specify an image to upload to the Image Service.

Image Name *

Image Description

Image Source

Source Type

File

File *

Browse... CentOS-8.3.2011-x86_64-minimal.iso

Format *

ISO - Optical Disk Image

Image Requirements

Kernel

Choose an image

Ramdisk

Choose an image

Architecture

Minimum Disk (GB)

Minimum RAM (MB)

Image Sharing

Visibility

Public Private

Protected

Yes No

Облачна услуга върху АВИТОХОЛ

Navigate to Project > Compute > Key Pairs

- Create Key Pair

- Save the generated PEM (Public and Private Keys)

openstack. demo admin

Project / Compute / Key Pairs

Key Pairs

Click here for filters. + Create Key Pair Import Public Key Delete Key Pairs

Name ^	Fingerprint
user-x	1e:29:c9:cb:fd:8e:83:0f:47:ec:4e:c3:47:6b:41:ad

Name ^	Fingerprint	
user-x	1e:29:c9:cb:fd:8e:83:0f:47:ec:4e:c3:47:6b:41:ad	Delete Key Pair

Public Key
ssh-rsa
AAAAB3NzaC1yc2EAAAADAQABAAQDD1NNRM8QIOSppqhGwDBHXnTJ0PgIT0HtMSQxKLEbafGiUVWATwi7GgWWaU6zA3jRsnvASU+6lx8vOeNOwe4a2qZQIIBhIMHI/FjdTCY3gBPN2hxSLf
pSSfkVF1+V0qITwqPGoTTeWFxCjYubu0/IZOiz9nWwybufTBUU15ACZSlzaQV59xFghA7cXfuTUyMEJ7
/00Baw9rXqWU8rmTvr9ziUboBG2xJdjZuCFe6VA71+MeBnObNmtWjUP7eQznfYnDboFe6SKdlEs2JoNhyJ/S2t1m9SJFQ9TCznpj/J80bGCT4jMC40nPhhV713PxKQisiQPAfHK4JrRY8MQGLy5v
Generated-by-Nova

You have chosen to open:

user-x.pem

which is: Text File (1.6 KB)

from: blob:

What should Firefox do with this file?

Open with Choose...

Save File

Do this automatically for files like this from now on.

Cancel

OK


Облачна услуга върху АВИТОХОЛ

Navigate to Project > Compute > Instances > “example vm” and click on Console

In case console does not appear open the browser developer tools > networking and add an exception for the non-trusted certificate (marked in red).

Instance Console

If console is not responding to keyboard input: click the grey status bar below. [Click here to show only console](#)
To exit the fullscreen mode, click the browser's back button.



Connected (encrypted) to: test-vm2 (250930d9-7cc9-4efd-abdc-23e802d43603) Send CtrlAltDel

```
CentOS Linux 7 (Core)
Kernel 3.10.0-693.el7.x86_64 on an x86_64

683fcd57-5e82-495e-89f3-31b4ed3c10d0 login:
```

~ (zsh) ⌘1

Or SSH from your machine

```
tsimchev@tsimchev-a02:~
ssh -i ./user-x.pem root@<instance-ip>
```

Благодаря за вниманието!