

# Cloud Activities at GRENA SIG-CISS 2022

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<https://www.grena.ge/>

## OpenStack Design

- Hardware
- Software

## Storage

- Block Storage
- Object Storage
- Backup Storage

## Custom Web Interface

- IaaS
- One Click Apps
- Integrated Services

The screenshot displays the GCloud website interface. At the top right, there is a navigation menu icon (three horizontal lines) and a user profile icon. Below the navigation, the main content area features a 'Why GCloud?' section with a list of bullet points and a 'LEARN MORE' button. To the right of this section is a graphic of blue server racks. Below the 'Why GCloud?' section is a 'Services' section with a paragraph of text and another 'LEARN MORE' button. To the right of the 'Services' section is an 'Integrated Services' box with a gear icon and a list of services. At the bottom of the 'Integrated Services' box are three diamond-shaped navigation arrows.

### Why GCloud?

- Full access to your own virtual Infrastructure
- Automated installation of commonly used services and applications
- Ready GitLab service - version control system
- Efficient resource usage charging policy
- And many other useful services
- Some of the projects according to scientific excellence will be granted with free of charge access to GCloud resources based on Memorandum of Understanding between research conducting organization and GRENA. For detailed information contact us at: info@gcloud.ge

[LEARN MORE](#)

### Services

Together with IaaS platform, we offer wide range of applications that can be installed automatically within a few minutes. Additionally, we have integrated various useful services for developers to make their work easy.

[LEARN MORE](#)

### Integrated Services

- Object Storage
- DNS - Domain Name System
- Load Balancer
- GitLab - version control
- SonarQube - code quality and security
- Sentry - Error Monitoring
- Chat - GitLab Mattermost

## Hardware Infrastructure

- 4 Dell Servers, Total Resources:
  - - 132 Core / 264 Thread
  - - 3.2TB RAM
- 6 X 10Gbps connection per server

## Software Design

- Each service on separate VM in our DataCenter
- Active/Active or Active/Passive configuration
- Percona XtraDB Multi-Master MySQL cluster

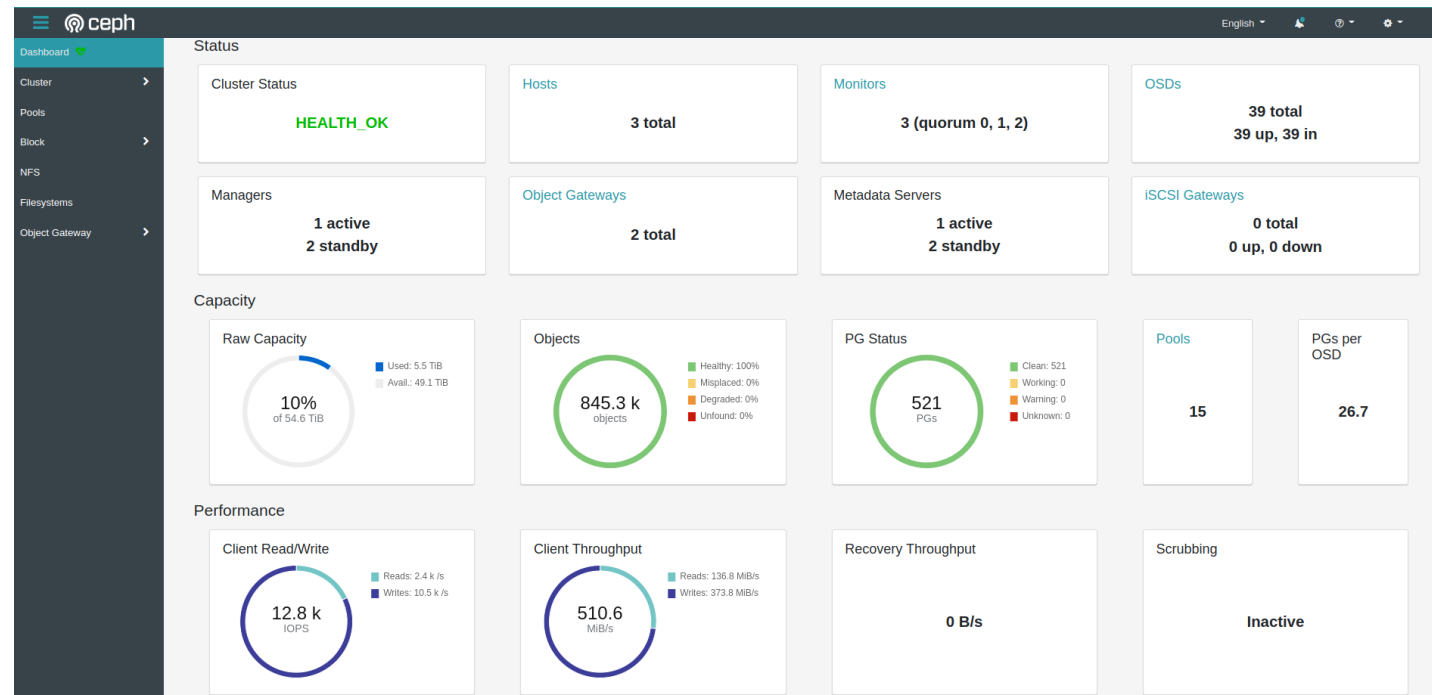
# Storage

## CEPH - Block and Object Storage

- 3 Node cluster
- 46 TiB RAW Storage
- NVME SSD Cache tier

## Backup Storage

- QNAP NAS











## Custom interface written from scratch

- Based on Django framework
- Communication to OpenStack via API calls only
- Monitoring
- Virtual DataCenter Management
- Networking and Load Balancers
- Object Storage
- DNS Management
- One Click Apps
- Integrated Services
- Usage Tutorials
- Pricing Model

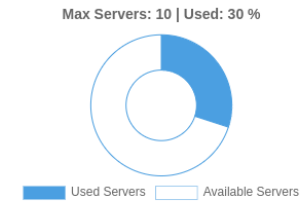
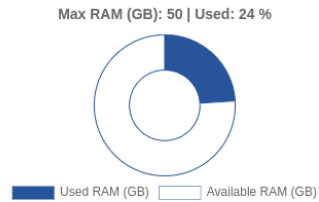
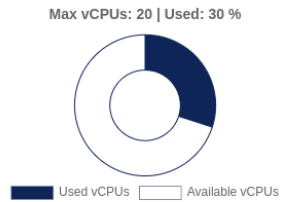
# Web Interface



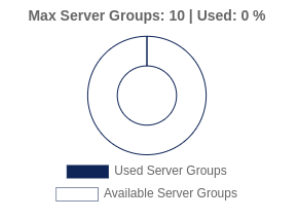
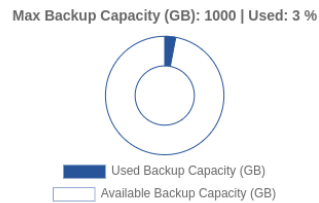
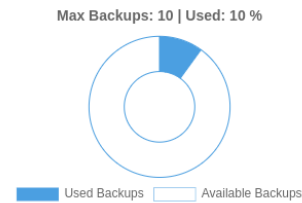
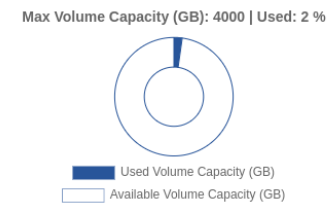
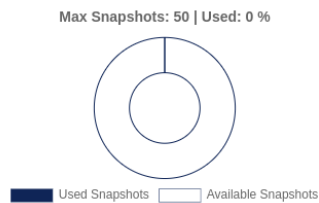
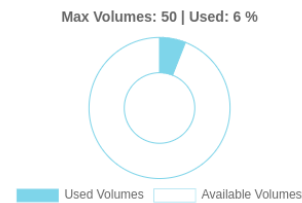
Tokens: 9254.44     

-  Dashboard
-  vDataCenters
-  Object Storage
-  Networking
-  Public IPs
-  DNS
-  Monitoring
-  Settings

## Resources Usage All vDataCenters

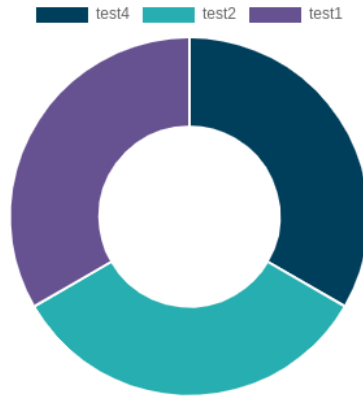


## VDC1

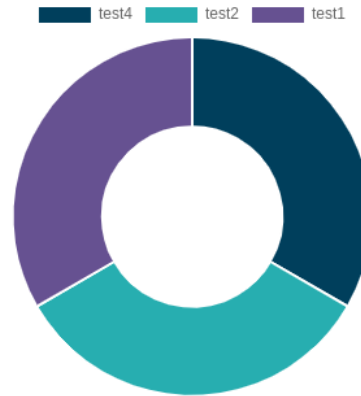


# Monitoring

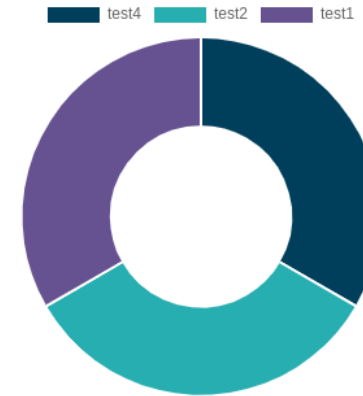
VDC1



CPU Usage [Total CPUs: 6]



Memory Usage [Total Memory: 12 GB]



Storage Usage [Total Storage: 90 GB]



test4

Created: 2022-11-16T08:42:47.000000

Data updated: Nov. 24, 2022, 3:12 p.m.

**Uptime:** 8 days

**State:** ACTIVE

**Package:** Small\_2\_4\_30  
vCPUs: 2, RAM: 4 GB, Storage: 30 GB

test2

Created: 2022-11-15T09:41:32.000000

Data updated: Nov. 24, 2022, 3:12 p.m.

**Uptime:** 9 days

**State:** ACTIVE

**Package:** Small\_2\_4\_30  
vCPUs: 2, RAM: 4 GB, Storage: 30 GB

test1

Created: 2022-07-20T10:40:37.000000

Data updated: Nov. 24, 2022, 3:12 p.m.

**Uptime:** 127 days

**State:** ACTIVE

**Package:** Small\_2\_4\_30  
vCPUs: 2, RAM: 4 GB, Storage: 30 GB

# Virtual DataCenter Management



Tokens: 9254.27 ? 1

VDC1

Refresh

Networks Security SSH Keys Volumes Backups Servers

+ Add Server

Servers: 3

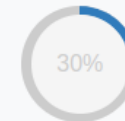
|       |                                     |        |
|-------|-------------------------------------|--------|
| test4 | 0.03 T per Hour / 24.19 T per Month | ACTIVE |
| test2 | 0.03 T per Hour / 24.19 T per Month | ACTIVE |
| test1 | 0.03 T per Hour / 24.19 T per Month | ACTIVE |



Manage Loadbalancers

Server Usage  
(Max 10)

Used in this vDC: 3  
Used in all vDCs: 3



Available: 7

- Dashboard
- vDataCenters
- Object Storage
- Networking
- Public IPs
- DNS
- Monitoring
- Settings



# Networking and Load Balancers



Tokens: 9254.27 ? 1

VDC1

Refresh

Networks Routers Loadbalancers Certificates

+  
Add  
Network

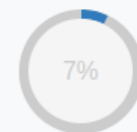
Local Networks: 7

|        |               |        |
|--------|---------------|--------|
| test4  | 10.10.30.0/24 | ACTIVE |
| test2  | 10.10.11.0/24 | ACTIVE |
| test1  | 10.10.10.0/24 | ACTIVE |
| check1 | 10.10.50.0/24 | ACTIVE |



Networks Usage  
(Max 100)

Local: 7



Available: 93

- Dashboard
- vDataCenters
- Object Storage
- Networking
- Public IPs
- DNS
- Monitoring
- Settings

# Object Storage



## Object Storage Service

Refresh

Overview Manage Usage

### Object Storage Access Information

GCloud Object Storage service has S3 Compatible API, which can be accessed at address:

s3.gcloud.ge

In order to access Object Storage service with S3 API, you must be registered at GCloud Rados Gateway and download your ACCESS\_KEY and SECRET\_KEY

### User Information

You are registered with User ID: **temurmaisuradze**

Download Keys

Unregister



- Dashboard
- vDataCenters
- Object Storage
- Networking
- Public IPs
- DNS
- Monitoring
- Settings

# DNS Management



Tokens: 9254.27 1

- Dashboard
- vDataCenters
- Object Storage
- Networking
- Public IPs
- DNS
- Monitoring
- Settings

VDC1

Refresh

Zones Records Reverse DNS

+ Add Zone

Zones: 2

|              |        |
|--------------|--------|
| example.com. | ACTIVE |
| demo.ge.     | ACTIVE |

# One Click Apps

## One Click Apps

Users can easily create dozens of applications/services in few minutes.

- Angular
- Django
- Drupal
- Elasticsearch
- Express.js
- Flask
- Kafka
- LAMP
- Laravel
- Memcached
- Meteor.js
- MongoDB
- MySQL
- Node.js
- PostgreSQL
- RabbitMQ
- Redis
- Tomcat
- Wordpress
- Zend

### Create New Server with Apps

**Applications \***


**General \*** [BigData\\_Analytics](#) [Caching](#) [CMS](#) [Databases](#) [JavaScript](#) [PHP](#) [Python](#) [WebServers](#)


**Resources \***


**Networks \***

**SSH Key \***

**Summary**

 **MongoDB**  
Version  MongoDB is a general purpose, document-based, distributed database built for modern application developers and for the cloud era. No database is more productive to use.  
**Supported Images:** Ubuntu 16.04, Ubuntu 18.04, CentOS 7, Debian 9, OracleLinux 8, Debian 10, Ubuntu 20.04,

 **MySQL**  
Version  MySQL, the most popular Open Source SQL database management system, is developed, distributed, and supported by Oracle Corporation.  
**Supported Images:** Ubuntu 16.04, Ubuntu 18.04, CentOS 7, Debian 9, OracleLinux 8, Debian 10, Ubuntu 20.04,

 **PostgreSQL**  
Version  PostgreSQL is a powerful, open source object-relational database system with over 30 years of active development that has earned it a strong reputation for reliability, feature robustness, and performance.

# Integrated Services



<https://gitlab.gcloud.ge/>



<https://sonar.gcloud.ge/>



<https://sentry.gcloud.ge/>



<https://chat.gcloud.ge/>

Create New Project Runner ✕

Runner Name:  ⓘ

vDataCenter:  ⌵ ⓘ

Gitlab Project:  ⌵ ⓘ

SSH Public Key:  ⌵ ⓘ

Package:  ⌵ ⓘ

Password:  ⓘ

Runners **Groups** Projects

[+ Add Runner](#)

Runners: 1

|             |  |
|-------------|--|
| demo-runner | Unregister IP Address: 185.212.252.131 |
|-------------|--|

## GCloud Usage Tutorials

- [Create New Account](#)

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- [Manage Profile](#)

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- [Manage Deposit](#)

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- [Manage Virtual DataCenters](#)

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- [Manage Virtual Servers](#)

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- [Additional actions for Virtual Servers](#)

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- [Manage SSH Keys](#)

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- [Manage Storage Volumes](#)

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- [Manage Local Networks](#)

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- [Manage Virtual Servers' Security](#)

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- [Manage Routers](#)

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- [Manage Public Static IP Addresses](#)

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- [Manage DNS Zones, Zone Records and Reverse DNS](#)

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- [Manage LoadBalancers](#)

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- [Manage SSL Certificates](#)

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- [Manage Object Storage](#)

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- [Manage Online Services](#)

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- [Manage GitLab Runners](#)

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- [GitLab Documentation](#)

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- [SonarQube Documentation](#)

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- [Sentry Documentation](#)

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# Pricing Model

Pricing in GCloud consists of the following components:

- 1 CPU Core (GHz range: 2.4-2.8) – 0.00013333 Token/Minute, 0.008 Token/Hour
- 1 GB RAM (Speed in MT/s: 2666) – 0.00005833 Token/Minute, 0.0035 Token/Hour
- 1 GB Disk – 0.000002 Token/Minute, 0.00012 Token/Hour
- 1 GB Disk Backup – 0.00000116 Token/Minute, 0.00006944 Token/Hour
- 1 GB Disk Snapshot – 0.00000116 Token/Minute, 0.00006944 Token/Hour
- 1 GB Object storage – 0.000002 Token/Minute, 0.00012 Token/Hour
- Load balancer: ( SA - Stand Alone, HA - High Availability)
  - SMALL\_SA\_LB\_PRICE\_PER\_HOUR = 0.012 Token/Hour
  - MEDIUM\_SA\_LB\_PRICE\_PER\_HOUR = 0.03 Token/Hour
  - LARGE\_SA\_LB\_PRICE\_PER\_HOUR = 0.06 Token/Hour
  - SMALL\_HA\_LB\_PRICE\_PER\_HOUR = 0.014 Token/Hour
  - MEDIUM\_HA\_LB\_PRICE\_PER\_HOUR = 0.04 Token/Hour
  - LARGE\_HA\_LB\_PRICE\_PER\_HOUR = 0.08 Token/Hour
- 1 Static IP – 0.0014 Token/Hour
- DNS - free

Advantages in pricing:

- Per minute cost calculation
- Users don't pay for traffic cost

Price calculator: <https://my.gcloud.ge/>

The screenshot shows a web interface titled "Calculate Server Price per Month". It features two input fields: "CPU & RAM" with a dropdown menu showing "1 Core(s), 1 GB" and a "Storage GB" field with the value "10". At the bottom, the price is displayed as "Price 9 \$" with a currency selector showing "GEL" selected and "USD" as an alternative.

**Thank you for your kind attention**

**Questions?**

