Architecture and technical information

Technical information about the CNCA Stratus cloud computing service

- Stratus technical overview

Stratus technical overview

The CNCA *Stratus* cloud computing service is a IaaS cloud infrastructure based on Openstack. OpenStack software enables control of large pools of compute, storage, and networking resources, that can be managed through a dashboard or via the OpenStack API. There aere two cloud services Stratus-A in Lisbon and Stratus-D in Vila Real.

The Two Web dashboards are available at:

- **https://stratus.a.acnca.pt**
- **https://stratus.d.acnca.pt**

The CNCA Stratus cloud implements several of the Openstack modules and provides the following features:

1. User authentication and authorization both local and federated via OpenID Connect. The CNCA cloud is already integrated with the EGI federated cloud enabling a wide range of authentication providers iincluding: eduGAIN, IGTF X.509 certificates, social media credentials, ORCID, GitHub, elixir, B2ACCESS and others.
2. Web dashboard providing easy access to the cloud functionalities.
3. Access to the Openstack API enabling programatic access and automation.
4. Management of Virtual Machines (VM) lifecycle including: creation, destruction, shutdown, boot, reboot, migration, archival, resizing, etc
5. Catalogue of operating system images from which new VMs can be created. An extensive set of images is provided. Additional images can be added on request or uploaded by the user.
6. Remote console access to the VMs through the Dashboard.
7. Management of SSH keys to access Virtual Machines over the network.
8. Management of disk volumes including: creation, destruction, attaching and detaching of volumes from VMs, snapshots, and creation of images from volumes.
9. Creation of virtual networks and virtual routers to interconnect Virtual Machines.
10. Network Address Translation (NAT) to enable Internet access for VMs with private IP addresses and for allocation of public IP addresses.
11. Integrated firewall to control VM access at the network level.
12. Object data storage through the Openstack Swift and S3 APIs.
13. Redundant storage for VMs, volumes and objects, using Ceph with data replication across failure domains.
14. SRIOV network interfaces for high performance network connectivity and lower latency between VMs.
15. Support for GPUs (subjected to availability and time constraints).

For further information contact the CNCA support **helpdesk**.