

Ibercloud: orchestrating services to provide virtualized access to IberGrid

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Description of the work

The objective of the IberCloud project is the deployment of a federated cloud IaaS testbed for scientific computing within the Ibergrid collaboration. In the interest of being as generic as possible, we pursue the integration of several popular cloud back-ends, namely resources behind OpenNebula and OpenStack deployments.

We have also analyzed the different APIs currently available in the community in order to identify the pros and cons of each of them (OCCI, EC2, libcloud and deltacloud).

As for user access, we provide a unique portal as interface to register, authenticate and accessing the services provided at each site contributing resources to Ibercloud.

We have also investigated the requirements of several communities of scientific users of the cloud in the Iberian Peninsula. In particular this applies to usage of generic software on single ore machines and parallel computing using MPI on Infiniband switches.

We describe as well several use cases in the area of Environment applicable to the ESFRI Lifewatch.

Link for further information

<http://cloud.ibergrid.eu>

Wider impact of this work

The main impact we expect is the broadening of the users base in Ibergrid. Currently we have a clear portfolio of users which are regularly using the Grid infrastructure in classic Grid. However there are a large number of users for which the Grid infrastructure is simply too much for their needs. The extra time needed to acquire expertise in using the Grid in a classic way does not compensate because their needs are much more focussed: deployment of databases on-the-fly, interactive access to resources for a few hours, just two name two examples.

We believe there is a large number of such customers in the scientific institutions of Spain and Portugal, which can be served if an appropriate on-demand cloud is setup as part of our federated infrastructure.

Printable Summary

Following users feedback, IberGrid is deploying a set of services to provide computing capabilities as configurable virtualized machines, available to the users on demand. In order to do that we have implemented together several OpenSource solutions available to the community. We have also investigated several use cases, among them interactive single-core access, as well as support to parallel computing in low-latency clusters. We present the architecture as a cloud-like service, as well as our view in current issues, potential solutions, and future work.

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