

Dynamic management of virtual infrastructures

Description of content and intended audience - the outcome you expect to achieve.

This demo will demonstrate the usage of the Infrastructure Manager service using both the CLI tool and the Web interface, to deploy virtual infrastructures on cloud deployments.

It will show the Resource Application Description Language (RADL) language used to describe the requirements of users' customized virtual infrastructures. Then it will show how the user can create a virtual infrastructure using the CLI and the Web interfaces. It will also show the infrastructure can be elastically modified adding or removing VMs on runtime and how it will be reconfigured. Finally the Elastic Cloud Computing Cluster (EC3) tool will be shown to demonstrate the usability of the IM tool in combination with an energy management system for High Performance Computing called CLUES to create elastic clusters that are self-managed based on the cluster workload.

The demo will show the description of how to configure and set-up a CE+WN EGI node from basic VMIs. Demonstration of this use case will take too long for an interactive demo session, but attendees will have a deeper understanding of the potential.

Relevant URL (if any)

<http://www.grycap.upv.es/im>

<http://www.grycap.upv.es/clues>

<http://www.grycap.upv.es/VMRC>

Printable summary: this is the only section of the abstract that will be published in the Book of Abstracts.

Cloud infrastructures are becoming an appropriate solution to address the computational needs of scientific applications. However, the use of public or on-premises Infrastructure as a Service (IaaS) clouds require users to have non-trivial system administration skills. Resource provisioning systems provide facilities to choose the most suitable Virtual Machine Images (VMI) and basic configuration of multiple instances and subnetworks. Other tasks such as the configuration of cluster services, computational frameworks or specific applications are not trivial on the cloud, and normally users have to manually select the VMI that best fits, including undesired additional services and software packages and even install additional software by their own. This demo will present a set of components that ease the access and the usability of IaaS clouds by automating the VMI selection, deployment, configuration, software installation, monitoring and update of Virtual Appliances. In addition it integrates a contextualization system to enable the installation and configuration of all the user required applications providing the user with a fully functional infrastructure. Moreover, the contextualization agent included in the framework supports horizontal (increase/decrease the number of resources) and vertical (increase/decrease resources within a running Virtual Machine) by properly reconfiguring the software installed, considering the configuration of the multiple resources running.

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