Contribution ID: **12** Type: **Poster**

Efficient Management of an OpenStack Cloud Infrastructure Through Multiobjective Programming

Description of content and intended audience</br>- the outcome you expect to achieve.

Description of contents: Our experiments analyse the influence of the ACPI module, the boot costs of a node configured with the different ACPI sleep status, virtual machine migration costs, comparisons between simulated and real cloud infrastructures and comparisons among the different alternatives explained in this poster.

Audience: System administrators, developers and data center directors

Outcome: The aim of this poster is to present our work, show our interest for energy and cloud technology, and meet new contacts.

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

Cloud Computing as IAAS (Infrastructure as a Service) has gained a rapid acceptance in the IT world producing implantations of clouds inside data centers. Focused on large cloud infrastructures, hundreds of machines are working together to offer users a base to execute their virtual machines. However, these cloud infrastructures consume large amounts of electrical energy, contributing to high carbon footprints to the environment. In addition, users expect the best reliability and availability of the cloud services when their business are depending on those services. Therefore, we need a Green Cloud Computing solution which does not only minimize energy consumption, but also achieves the efficient processing and utilization of cloud computing infrastructures.

In this poster, we work with a real cloud architecture based on the OpenStack platform to achieve a solution through real infrastructures instead of simulators. Our experiments analyse the influence of the Advanced Configuration and Power Interface (hereinafter ACPI) module, the boot costs of a node configured with the different ACPI sleep status, virtual machine migration costs and comparisons among the different alternatives explained in this poster (without threshold, with one threshold and with two thresholds). The result is the development of a set of daemons which minimizes the energy consumption, and also achieves the efficient processing and utilization of a cloud computing infrastructure.

Primary author: DIAZ, Miguel Angel (CETA-CIEMAT)

Co-authors: Dr PAZ, Abel (CETA-CIEMAT); Dr VEGA, Miguel Angel (University of Extremadura)

Presenter: DIAZ, Miguel Angel (CETA-CIEMAT)