Contribution ID: **214**   Type: **poster**

Dynamic Virtual AliEn Grid Sites on Nimbus with CernVM

Monday 23 March 2009 08:00 (20 minutes)

Infrastructure-as-a-Service (IaaS) providers allow users to easily acquire on-demand computing and storage resources. For each user they provide an isolated environment in the form of Virtual Machines which can be used to run services and deploy applications. This approach, also known as 'cloud computing', has proved to be viable for a variety of commercial applications. Currently there are many IaaS providers on the market, the biggest of them is Amazon with its 'Amazon Elastic Computing Cloud (Amazon EC2)' service.

The question arises whether scientific communities can benefit from the IaaS approach, and how existing projects can take advantage of cloud computing. Will there be a need to make any changes to existing services and applications? How can services and applications (e.g., grid infrastructure or other distributed tools), currently used by scientists, be integrated to infrastructures offered by IaaS providers?

In this contribution we describe some answers to these questions. We show how cloud computing resources can be used within the AliEn Grid framework, developed by CERN ALICE experiment, for performing simulation, reconstruction and analysis of physics data.

We use baseline virtual software appliance for the LHC experiments developed by the CernVM project. The appliance provides a complete, portable and easy to configure user environment for developing and running LHC data analysis locally and on the Grid, independent of physical software and hardware platform. We deploy those appliances on the Science Clouds resources that use the Nimbus project to enable deployment of VMs on remote resources. We further also use Nimbus tools for one click deployment of dynamically configurable AliEn Grid site on the Science Cloud of the Univeristy of Chicago.

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Session Classification: Poster session

Track Classification: Distributed Processing and Analysis