Contribution ID: **83** Type: **Demonstration**

Interoperabilty among gLite and ARC middleware in training grid infrastructures: GRIDSEED testcase

Wednesday 14 April 2010 16:30 (20 minutes)

GRIDSEED provides a simple tool to setup up a portable fully fledged gLite grid infrastructure based on virtual machines. It exploits the concept of "grid in a box"providing a self-containing grid that could be easily deployed in any existing infrastructure for training and dissemination purposes. In this work we present a recent effort to include ARC middleware in the original GRIDSEED infrastructure
The purpose of the exercise is to provide a training facility where users could learn how two similar grid middleware can interact and have a first knowledge on interoperability issues.

Detailed analysis

Gridseed now incorporates a complete minimal and functioning GLite installation as well as an ARC installation. The novelty of this approach is the exploit of the commonalities of both infrastructures with an emphasis on the functional interoperability between the two.
The UI from both middleware have been unified in a single gridseeed_UI where users as enabled to use same credential as well as same VOMS proxy to interact with both CE frontends.
Both LCG_CE and ARC_CE are configured to access the same computing resources.
Both GLite and ARC are using the same LFC file catalogue as well as the same storage element.
The above services are complemented by a fake Certification Authority. Any user can generate her personal certificate and/or a host certificate to add for instance a new VM host to the system through simple web interfaces.
The information system interoperability has not yet been reached GLite and ARC are using different and non-compatible schema. New release of ARC is supposed to use Glue-2 schema.
On top of the middleware components, GRIDSEED provides high level tools like GANGA and DIANE and other demo application developed within euindia grid project.

Conclusions and Future Work

This work presents a first attempt to setup a training facility that would provide to end users the possibility of facing grid interoperability features and issues when using quite widely deployed European grid middleware solutions.
While using GRIDSEED, users are able to experience different levels of interoperability: Middleware level, scientific gateways level, application access level.
GRIDSEED will be expanded to include support for other grid middleware like GARUDA used in the Indian Grid infrastructure, as well as other high level tools like web-based portals or workflow engines

Impact

GRIDSEED tool was developed to easily deploy a training grid infrastructure almost everywhere in the world with the only requirement a set of machine (simple PC are) locally connected among them. It uses widely available and standard virtualization tool like VMware.

It has been used several times in Training events and it is a key training resource for EU-IndiaGrid project.
In this work GRIDSEED has been enhanced in order to be a completed training environment formed by a virtual infrastructure where different grid middleware are inter-operating. High-level tools are also installed to help users in porting, deploying and accessing their application across the different available middleware.
The purpose of the exercise is to provide a training facility where users could learn how to use ARC and GLite middleware and have a first knowledge on interoperability issues at different levels.
At the best of our knowledge GRIDSEED is, at the moment, the only grid virtual training infrastructure that provides an easy configurable environment where end users can experiment with interoperability issues on tightly integrated middleware.

Keywords

Virtual training infrastructure, GLite, ARC, interoperability

URL for further information

gridseed.escience-lab.org

Justification for delivering demo and/or technical requirements (for demos)

A live demo of the features of GRIDSEEDwould result in a more direct impact for the end users.
We are currently working on it but we would like to take a final decision on live demo at a later stage

Authors: Dr MAFFIOLETTI, Sergio (Grid computing Competence Center (GC3), university of Zurich.); Dr COZZINI, Stefano (CNR-INFM Democritos and ICTP)

Co-authors: GREGORY, Iztok (CNR-INFM Democritos and Sissa/eLab); Dr MURRI, Riccardo (CSCS); Dr ALEKSIEVIC, Tyanko (Sissa/elab)

Presenter: Dr MAFFIOLETTI, Sergio (Grid computing Competence Center (GC3), university of Zurich.)

Session Classification: Demo Session 2

Track Classification: Software services exploiting and/or extending grid middleware (gLite, ARC, UNICORE etc)