GridPP Portal
Gidon Moont, David Colling

e-Science, High Energy Physics - Imperial College London

Abstract

The GridPP Portal has been built to meet the immediate requirement of providing easy access to the computational and storage capabilities of the LCG. The current users are GridPP (for dissemination purposes), and the HEP experiments CALICE and MICE. The design consists of two machines, one of which provides a web browser interface to a user, the other which hosts an LCG User Interface. The two communicate using SOAP Web Services. Additional Java Web Start software provides easy management of the user’s proxy.

Users

This portal has been built to meet the immediate requirement of providing easy access to the computational and storage capabilities of the LCG. The current users are GridPP (for dissemination purposes), and the HEP experiments CALICE and MICE.

Strategy

The portal is required to deliver immediate access to the LCG. Therefore the current design uses tried and tested software components that can provide a stable and reliable portal now. These currently consist of Apache web servers, CGI/Perl and Java Web Start. We also use a GridPP developed Apache component called GridSite.

However, we are aware that other portal technologies will begin to meet these requirements of stability and reliability in the near future. By splitting the components of the portal using SOAP web services we can introduce these technologies to the system incrementally, as well as provide multiple front ends all using the same LCG interface.

Future technologies that are likely to be used include a JSR-168 compliant portal framework such as GridSphere, Axis to provide SOAP web services, and Tomcat.

Design

The portal consists of two components: a "portal" and an "LCG User Interface" machine. The "portal" is currently implemented as a website, and is accessed by a user from any third machine. The portal is designed to be used in a wandering manner, so the user's machine needs only to have internet access and a web browser, both of which are standard, and a few small files that can easily be moved around on a floppy or USB memory stick.

The portal machine serves pages using an Apache websver. It can serve pages over http, but all functional pages are accessed over
https. GridSite (www.gridsite.org) allows effective one-time login using the user’s CA signed certificate. When a user first logs in with their certificate, an area is assigned to them by the portal. GridSite then provides a nice interface for uploading and managing files.

In order to use the LCG, the portal needs to be able to have access to a user’s proxy. A Java Web Start program allows the user to create and send a proxy to the portal just by giving their password and clicking a button. This proxy is then held in a secure (non http accessible) area, and used by the portal on behalf of that user.

The LCG User Interface is on a second machine, and the portal machine sends requests for services over SOAP. These services are all described by WSDL files.

Each time the user uses the portal to do something on the LCG, their proxy is sent to the LCG UI machine. All communication is done over https. The UI machine runs another Apache server that can serve SOAP Web Services using the Perl SOAP::Lite module over CGI. The CGI scripts always delete the user’s proxy before finishing their tasks.

Current Status

A prototype portal is available at https://gridportal.hep.ph.ic.ac.uk to anyone with a CA signed certificate and membership of a LCG Virtual Organisation. A manual with a tutorial makes submitting a job and retrieving results straightforward. There is also an example application to calculate Pi using a Monte Carlo simulation.

Future Development

The portal was built with an architecture consisting of two clearly separated parts. The reasons for this are both that the user interface ("portal") should not reflect any changes in the LCG that are ongoing, and we allow for easy development of other front ends. These could include a web browser based JSR-168 compliant portal framework, or a standalone Java program.

The choice of using Perl/CGI for the current development was due to a combination of development speed and current stability. It is also the case that the ideal of reusable JSR-168 compliant portlets, such as diary functions and other management tools, is not applicable to this portal, which is required to deliver immediate access to the LCG.