VIROLAB

A virtual laboratory for decision support in viral diseases treatment

Development and Execution of Collaborative Application

http://virolab.cyfronet.pl

Objectives

ViroLab virtual laboratory should provide an advanced collaboration space for the end user (scientist) and the experiment developer. There is a need for high-level experiment plan notation, to express complex collaborative applications. It should be supported by tools facilitating clear development, release, execution and result mangement practices.

Experiment Script

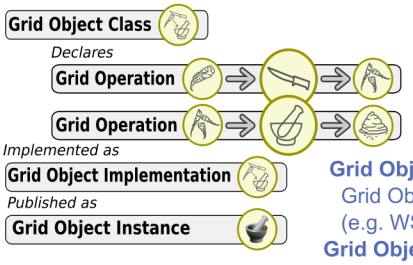
Experiment script is a piece of program in a computer language that the virtual laboratory execution component is able to interpret. The script defines the main steps in experiment process and the control flow between those steps.

Collaborative Experiment Development

Development:
- high-level scripting language (JRuby)
- easy access to remote databases
- Grid Object abstraction: focus on "which" computational functionality is required, not "how" to access it

Experiment sharing:
- storing scripts in SVN system, to allow creating experiments by many developers
- clear releasing process

Grid Object abstraction



Grid Object Class - a group that has similar functionality with regard to its domain operations.

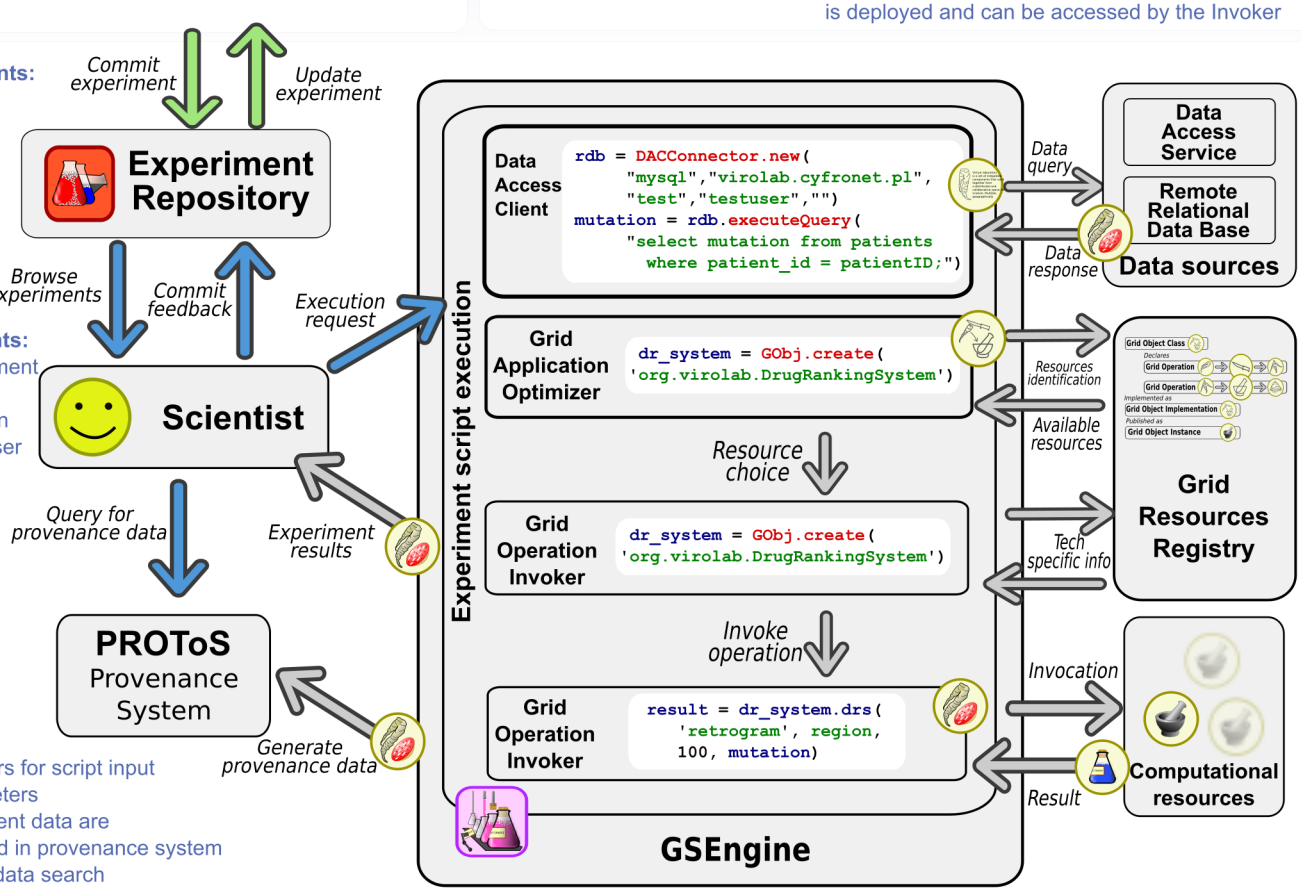
Grid Object Implementation - realization of Grid Object Class in concrete technology (e.g. WS, MOCCA)

Grid Object Instance - an implementation that is deployed and can be accessed by the Invoker

Browsing experiments:
- web application for browsing and executing experiments

Running experiments:
- single-click experiment execution
- Interaction between experiment and user

Gathering results:
- dedicated renderers for script input and output parameters
- important experiment data are automaticaly stored in provenance system
- easy provenance data search



Feedback:
- easy communication between end user and developer
- scientist feedback is very important for creating new versions of experiment scripts

Developer activities
Scientist activities
Experiment script execution

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References

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