Topic: **Genomics, Evolution and Phylogeny**

FACEWEB: A PLATFORM TO SUPPORT THE EXECUTION AND MONITORING OF WORKFLOWS ON THE WEB

A Bechara[1], ML Campos[1], SMS Cruz[1], AMR Dávila[2]

[1]*UFRJ*
[2]*Fiocruz*

In order to conduct computational biology experiments, researchers have to deal with a complex chain of programs every day. Scientific Workflow Management Systems(SWfMS) support the composition and execution of workflows but they are not easily integrated to other facilities usually offered through a user-friendly interface on the Web. We have developed a system to support the configuration, execution and monitoring of workflows through the Web. One of the main characteristics of Computational Biology laboratories work is that scientists have to handle high volumes of data and that there are usually a diversity of specific programs involved. To support the composition and execution of scientific experiments, SWfMS have been increasingly adopted. In this scenario, the experiment , based on scientific workflows are usually submitted using the SWfMS interface locally. To facilitate the researchers' work, a platform to support scientific workflows enacted through the Web was developed, using the model of software as a service (SaaS). This platform, called FaceWeb, promotes a number of advantages, including the decoupling between the experiment and the SWfMS and a user-friendly interface to select, invoke, configure and monitor the execution of the defined workflows. The scientific workflow OrthoSearch, which allows the detection of distant homologies on trypanosomatids metabolic pathways, was developed in VisTrails SWfMS. Through FaceWeb, this workflow can be configured with the parameters necessary to undertake the experiment through the Web. This platform is customizable to support different types of scientific workflows developed on VisTrails system. Previous to its execution, the interface prompts the user todefineeach mandatory input parameter. The progress of the experiment is tracked by FaceWeb providing constant feedback to the researcher. In order to avoid license costs, the solution was implemented using open source technologies. The FaceWeb was developed using JEE (*Java Enterprise Edition*) platform and the application is composed of two logical modules, *WorkFlowDefinition* and the *ProcessExecutionManager*. The former is responsible to define the parameters required by each workflow and its correspondent data types. The later, is responsible to manage the execution of each workflow. This module interacts with the underlying operational system to retrieve information about the process being executed and deliver it to the user over the web interface.

This research is partially supported by FAPERJ/CNPq and IOC/FIOCRUZ.