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A "Software as a Service" solution for exploiting Grid/Cloud infrastructure for bioinformatics and biomedical analysis workflows"

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The BioVeL project is a virtual e-laboratory that supports research on biodiversity issues using large amounts of data from cross-disciplinary sources. BioVeL offers the possibility to use computational workflows to process data, be that from one's own research and/or from existing sources. A researcher can build his own workflow by selecting and applying successive services (data processing) registered in BiodiversityCatalogue.org, or he can re-use existing workflows available from BioVeL's library held in biovel.myexperiment.org. This e-laboratory cuts down research time and overhead expenses.

INFN and CNR in the context of this project has realized a Web Service based solution that is able to provide a reliable solution for request and manage the execution of a given application within the most used computing infrastructure: EGI Grid, IaaS cloud, Local Batch farms and dedicated nodes.

The software developed enables the users to easily add new services to their workflow requesting a specific calculation to be performed, without even knowing where it will be executed. A scheduling system underneath is able to deal with scheduling the execution of the applications, managing accounting, dealing with failures, and also deal with data management issues.

In the work we will present the development done and the results achieved also in terms of exploiting new cloud computing infrastructures.

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Session Classification: Scaling up life sciences with grids and clouds - stories and recommendations