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Promoting Grids and Clouds for the Health Science and Medical Research Community in France

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Life sciences in general, and medical research in particular, have increasing needs in terms of computing infrastructures, tools and techniques: research in domains such as genomics, drug design, medical imaging or e-health cannot be undertaken without the adequate computing and data solutions. Yet generalizing the use of large scale and distributed infrastructures requires time and effort, first because of the cultural shift it implies for many researchers and teams, and second because of the heterogeneity of users'needs and requirements.

INSERM, the French National Institute for Health and Medical Research, is facing such a challenge. INSERM is the largest European medical research institution with around 300 research units and more than 1000 teams spread all over the country. As such, it represents a very wide panel of disciplines and domains, but also very different levels of expertise with regards to scientific computing and associated technologies: while a few teams have been using distributed infrastructures for many years, others are only merely aware of their existence and possible benefits.

To face this challenge, INSERM has launched in 2014 a Computational Science Coordination Team (CISI) within its IT department. CISI is built as a set of competence centres on major scientific computing themes and technologies (grids, clouds, HPC, big data, parallel computing, simulation...).
Building on this expertise, the team aims at addressing and matching the needs of INSERM researchers with the appropriate technical solution. One of the objectives of the team is to build and support communities around these different technical areas. One of those communities will be built around the use of grids and clouds, with the help of France Grilles, the French NGI, and in collaboration with other national institutions.

The presentation will first describe CISI's organisation and missions, ranging from infrastructures and usage mapping to projects, training, expertise and support. It will then explain the organisation of knowledge transfer to enlarge grid and cloud users communities at INSERM, especially within the medical imaging, bioinformatics and e-health domains.
It will also present 2 practical examples of innovative research on the edge between life sciences and computing: the deployment of a new parallelisation paradigm in a medical imagery use case using EGI infrastructure through DIRAC, and a pharmacovigilance application using iRODS and academic clouds.
It will finally present INSERM's vision to empower its researchers through the use of Virtual Research Environments (VREs).

Links, references, publications, etc.

http://cisi.inserm.fr

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