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VIP: a Virtual Imaging Platform for the long tail of science

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Computing and storage have become key to research in a variety of biomedical fields, for example, to compute numerical simulations for research in medical imaging or cancer therapy, or to automate the analysis of digital images in neurosciences or cardiology. The Virtual Imaging Platform (VIP) is a web portal for medical simulation and image data analysis. It leverages resources available in the biomed Virtual Organisation of the European Grid Infrastructure to offer an open service to academic researchers worldwide.

VIP aims to mask the infrastructure and enable a user experience as transparent as possible. This means that VIP has to take decisions as automatically, quickly, and reliably as possible regarding infrastructural challenges such as:
-(1) the placement of data files on the storage sites,
-(2) the splitting and distribution of applications on the computing sites,
-(3) the termination of misbehaving runs.

We heavily rely on the DIRAC service provided by France Grilles (the NGI of France) to take such decisions in the changing environment of EGI. In addition, we have developed 'non-clairvoyant' techniques to specifically address the challenges of the applications provided in VIP.

With VIP, researchers from all over the world can access important amounts of computing resources and storage with no required technical skills beyond the use of a web browser. EGI is essential to the success of VIP because it provides an open infrastructure relieving researchers from the burden of negotiating resource allocations with computing centres. Such an open policy enables the supply of services to the long tail of science, i.e. to the large number of groups and projects of modest size such an individual masters or PhD project, proof-of-concept studies, and so on.

Links, references, publications, etc.

URL: https://vip.creatis.insa-lyon.fr
Publications:
"A Virtual Imaging Platform for multi-modality medical image simulation", T. Glatard, C. Lartizien, B. Gibaud, R. Ferreira da Silva, G. Forestier, F. Cervenansky, M. Alessandrini, H. Benoit-Cattin, O. Bernard, S. Camarasu-Pop, et al., IEEE Transactions on Medical Imaging, vol. 32, no. 1, pp. 110-118, 2013

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