

EPOS-CC Computational Seismology Use Case

Tuesday, 10 November 2015 11:10 (15 minutes)

The EPOS Competence Center will focus its effort on the analysis and the prototypal implementation of a number of use cases, which are crucial for the realisation of the EPOS Research Infrastructure. These uses cases will span across different scenarios, such as the adoption of a scalable AAI and the integration of computational and Cloud Services, to support existing and yet to come scientific applications in Solid Earth Science.

More specifically, one of the use cases aims to improve the back-end services of an existing application in the field of Computational Seismology, developed in the context of the EC funded project VERCE. The application allows the processing and the comparison of data resulting from the simulation of seismic wave propagation following a real earthquake and real measurements recorded by seismographs. While the simulation data is produced directly by the users and stored in a Data Management System, the observations need to be pre-staged from institutional data-services, which are maintained by the community itself. Users can interactively select the data of interest, compose and execute processing pipelines and conduct eventually the MISFIT analysis between the synthetics and the observed-data streams. The final scope of the tool is to support the researchers with the study and the improvement of regional and global Earth Models.

Within the Competence Center we will evaluate improvements to the infrastructure which lays behind the aforementioned application, evaluating the adoption of Cloud technologies as an alternative to the GRID. Moreover, in cooperation with the AAI Use Case, we may consider the integration or the coexistence of new authorisation and delegation mechanisms to deal with secure job submissions and the acquisition of raw-data from the institutional data-services, if required.

We will present the scientific tool in the context of the current Virtual Research Environment, which offers different Workflow technologies and a comprehensive Provenance and Data-Management System. We will show ideas and plans for the future integration of the EGI's new classes of services, taking into account a preliminary "benefits versus costs" evaluation. This is crucial for a proper assessment of the reusable components of the VRE within the EPOS RI, trying to pursue a strategy which accommodates diversity, as well as sustaining long term compatibility.

Links, references, publications, etc.

https://www.researchgate.net/publication/277813193_VERCE_delivers_a_productive_e-Science_environment_for_seismology_research

www.verce.eu

www.epos-eu.org

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Session Classification: The EGI Federated Cloud - The word to the users: showcasing the fedcloud use cases