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VERCE use case and requirements

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The EU-funded project VERCE (http://verce.eu/) aims to address specific seismological use-cases employing resources spanning available e-Infrastructures on the basis of requirements elicited from the seismology community. It provides a service-oriented infrastructure to deal with the challenges the researchers face while carrying out the data-intensive and high-performance computations employed in modern day seismology. In particular, the implementation of the project is driven by two major use-cases. The first is the computationally intensive forward and inverse modelling of Earth system models, which is implemented with support for multiple waveform simulators running on HPC systems and x86 clusters. The second is a data-oriented seismic wave cross-correlation. VERCE offers a Scientific Gateway integrating access to workflows running on different infrastructures and data management including procurement of experiment parameters using a data infrastructure based on iRODS and supplemental web services.

In this talk we will present where we see opportunities for VERCE to benefit from Cloud technology and will further present a proof-of-concept service already running on the Cloud, which is designed to complement the services of the VERCE infrastructure. It collects trace series from seismological data centers over Web Services following the International Federation of Digital Seismograph Networks standards (FDSN-WS), distributes them on Cloud resources and executes data pre- and post-processing scripts specified in Python using the ObsPy framework/seismological toolbox. The processing is carried out in Docker containers running on the Cloud VMs for additionally sandboxing the user code.

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