

Running batch jobs opportunistically across dynamic hybrid multi-clouds

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The use of clouds for running scientific workloads, in particular for HTC applications, is well established. In recent years the use of clouds for also running HPC applications, which typically require low-latency interconnects, has also been gaining momentum. As such, many platforms have been developed for creating clusters in clouds or enabling local batch systems to burst into clouds. However, generally these platforms assume that only one or a few large clouds, where resources are guaranteed, will be used. With the increasing deployment of clouds within national e-infrastructures and increasing access to public clouds it is becoming more and more important to provide ways for users to easily run their workloads across any number of clouds.

PROMINENCE is a platform, originally developed within the Fusion Science Demonstrator in EOSCpilot and currently being extended through the EGI Strategic and Innovation Fund, allowing users to transparently run both HTC and HPC applications on clouds. It was designed from the ground up to not be restricted to a single cloud but be able to use multiple clouds simultaneously in a dynamic way, including many small clouds opportunistically. From the user's perspective it appears like a normal batch system and all infrastructure provisioning and failure handling is totally invisible. All jobs are run in containers to ensure they will reliably run anywhere and are reproducible. POSIX-like access to data can be provided (leveraging technologies such as OneData) or data can be staged-in and out of jobs from object storage.

This demonstration will begin with a walk-through of the features provided by PROMINENCE and further show how easy it is to run jobs and workflows across multiple cloud providers.

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