

This thesis tackles computation distribution in the IVIS data processing and visualization framework. In the existing versions, so-called Jobs are being executed only on the IVIS host machine, raising scalability concerns. The thesis attempts to allow the distributed execution on manually-provisioned machines, commercial cloud platforms, and an HPC cluster. It does so by introducing the "executor" entity, ensuring adherence to the present Job architecture and, because the communication is done over the Internet, security. We introduce two auxiliary applications which manage the remote control of a machine and the management of a set of machines (a pool). We achieve parallelization of running Jobs. We also see the possibility of further extension to enable the usage of specialized hardware or more dynamic machine allocation.