# Workflows and Distributed Computing

Distributed computing aims to offer tools and mechanisms that enable the sharing, selection, and aggregation of a wide variety of geographically distributed computational resources in a transparent way. The research done in this team is based on the past expertise of the group, and on extending it towards the aspects of distributed computing that can benefit from this expertise. The team at BSC has a strong focus on programming models and resource management and scheduling in distributed computing environments. Current trends in virtualisation have led to the appearance of Cloud computing, a topic also covered by this team. The activities of the group are mostly performed around the COMPSs project.

# Objectives

- Do research and development in programming models for distributed computing platforms with the objective of offering easy ways to program applications in those environments.
- Do research and development in runtimes for distributed computing platforms. In this sense, research on aspects related to automatic parallelisation, distribution of data, scheduling taking into account data locality and energy, and middleware interoperability is of interest to us.
- Do research and development on the integration of programming models and runtimes with new ways of storing data (persistent storage solutions).
- Do research and development on programming models and runtimes in mobile computing platforms.
- Do research and development on frameworks to perform automatic deployment and management of applications to be executed in distributed computing platforms.
- Do research and development on libraries and environments that support the execution of quantum algorithms and hybrid classical-quantum workflows.



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