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Data Life Cycle Labs, a new concept to support data-intensive science

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Impact

Scientific communities are experts in acquiring and analyzing their data. The opportunities and challenges of the data deluge force communities to revise, and in many cases, replace tools and approaches for management and analysis of data. These 'big data' tasks, which are in the domain of applied computer science, are of secondary interest to the communities, who would prefer to collaborate with data experts over engagement in these tasks on their own. The cooperative R&D of the data life cycle labs with the communities enables them to fully utilize the opportunities of big data management and exploration. LSDMA's unique dual approach of Data Life Cycle Labs and the Data Services Integration Team ensures that R&D tasks common to several communities are not addressed redundantly and facilitate interdisciplinary research.
LSDMA collaborates with national and international data management initiatives. Sustainability of the project tasks is ensured. In 2015 the project will become a part of the program-oriented funding scheme of the German Helmholtz Association and is therefore becoming anchor for current and future scientific data management initiatives in Germany.

Summary

The German Helmholtz Association has started the "Large Scale Data Management and Analysis"(LSDMA) project. The project aims to develop and structure data handling methods through close cooperation with the communities in Data Life Cycle Labs (DLCL). Several labs are already active and more will follow in the near future, thereby offering support for in principle all scientific disciplines. Development in the laboratories is community specific but is based on a common set of services developed and integrated by a team of experts in grid, cloud and HPC storage and computing. Four centres of the Helmholtz association, KIT, FZJ, DESY, GSI, the "German Climate Research Center"(DKRZ) and 6 German universities collaborate in this project.

URL

http://www.helmholtz-lsdma.de/

Description

Rapidly increasing data rates are limiting the speed of scientific turnover in many experiments and in various research communities. By providing high performance data management components, analysis tools, computing resources, storage and services it is possible to address this challenge but the realization of a data intensive infrastructure at institutes and universities is usually time consuming and always expensive. The LSDMA project extends the services for research of the Helmholtz Association of research centres in Germany with community specific Data Life Cycle Laboratories (DLCL). Working in close collaboration with scientists, collaborative research and development activities in the DLCLs will lead to community-specific tools and mechanisms to define, efficiently process, manage, and analyse data of the whole data life cycle.
Four Helmholtz research centres KIT, DESY, GSI, FZJ take part in the LSDMA project as well as the "German Climate Computing Center"(DKRZ) and the Universities of Dresden, Frankfurt, Hamburg, Heidelberg, Ulm and Berlin. The project initially focuses on support of scientific communities present at the research centres. The DLCLs are complemented with a Data Services Integration Team (DSIT) which will provide generic technologies and infrastructures for multi-community use based on research and development in the areas of data management, data access and security, storage technologies and data preservation.

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