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(57) Abstract :
The purpose of this study is to introduce Ophidia, a big data analytics research effort that aims to help the accessing, analysing, and mining of scientific data that is based on n-dimensional arrays. Ophidia is a platform that enhances the capabilities of existing relational database system implementations, in particular MySQL, to perform efficient data analysis operations on scientific array-based data. This is accomplished by extending relational database primitives as well as data types. It makes use of well-known scientific numerical libraries, a distributed and hierarchical storage model, and a parallel software framework based on the Message Passing Interface so that it can run from single tasks to more complex dataflows. All of these are done in order to make it possible to perform big data analytics. Within the framework of the international Coupled Model Intercomparison Project Phase 5, the most recent version of the Ophidia platform is currently undergoing testing using NetCDF data that was produced by climate scientists working for the CMCC (CMIP5). (C) 2013 Authors of the Work Printed and distributed by Elsevier B.V. The organisers of the 2013 International Conference on Computational Science are responsible for both the selection process and the review by other researchers.

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