SAGA-based application to use resources on different Grids

This paper describes practical applications using resources on the different kinds of Grid middleware. At the KEK Computing Research Center, many jobs must be submitted for physics simulations involving large number of data files produced by physics experiments. The available resources of the various Grids should be used in a cooperative way, but currently specialized knowledge is required to use each Grid. Our solution is using SAGA (Simple API for Grid Applications), which provides a unified interface that conceals the differences among the different kinds of Grid middleware. We developed several SAGA adaptors for job execution, file management, and catalog services. The job adaptors we created are applied to each kind of Grid middleware used at KEK: NAREGI, PBSPro, and Torque. The file adaptors support the Data Grids: iRODS and Gfarm. The replica adaptor currently in use is for the catalog service: RNS (Resource Namespace Service) and iRODS. SAGA with those adaptors enables us to utilize the different Grid resources as well as local resources without any concerns about underlied middleware. Technical details and sample applications are described in this paper.

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