Concept of a Grid Scientific Knowledge Base

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This project is a feasibility study on the concept of a Scientific Knowledge Representation and Computational Service. The concept is produce a Grid/Distributed Knowledge Base which is a service which considers the numerical libraries as services as well. One characteristic of this Scientific Knowledge Base Service is the ability to use multi-level resource and data management to facilitate its goal. If these distributed systems can be treated as collective of machines or simply a large computer, then principles of a large computer comes into play. The semantics of such an KB must implicitly translate or contribute to some service oriented paradigm in a way to optimize use of these collectives.

The first steps in generating such a Scientific Knowledge Representation and Computing Service is to define and demonstrate what a multi-level resource is. Next is to demonstrate an application using this service. Finally, show how such an application can be improved both algorithmically, and conceptually in this form.

Chosen for these exercises are xGrid for the cluster manager, Globus for the cluster interconnect, and SDSS for the application. xGrid requires a simple API that can allow either cluster interconnection or application use of its resource fluently. The SDSS project also requires its astro-tools converted to a framework which can be mobile and published as a service. A framework is a collection of objects organized in a hierarchy.