Simple API for Grid Applications (SAGA)

Purpose: Provide a uniform API for programming grid applications with a common "look and feel" across all operations when programming in a distributed environment.

Description: SAGA is an object-oriented API with a number of functional packages for fundamental programming capabilities:

- **Job Management:** Provides job submission to grid resources and subsequent management, either in batch or interactive mode, using a state model consistent with that of OGSA-BES.
- **Name Spaces:** Provides methods for managing hierarchical name spaces.
- **File Management:** In conjunction with the Name Space Package, provides methods for operating on the content of files, e.g., read, write, seek.
- **Replica Management:** Provides logical files and replicas, along with search based on logical file metadata.
- **Streams:** Provides a persistent byte stream abstraction for communication objects.
- **Remote Procedure Call:** Provides a remote procedure call style of interaction consistent with the OGF GridRPC standard.

Just as important, SAGA provides a number of "Look & Feel" API packages:

- **Task Model:** Provides management of any asynchronous tasks (local or remote).
- **Monitoring Model:** Provides a callback mechanism whereby an application can be notified of object state changes.
- **Sessions:** Allows sets of SAGA objects to be isolated and managed independently.
- **Contexts:** Provides a security information container attached to a session.
- **Base Object:** Provides essential methods for all SAGA objects, e.g., unique ID.
- **Attribute Interface:** Provides a common interface for getting/setting object attributes.
- **Error Handling:** Provides uniform error handling for all SAGA objects.

SAGA is language-independent and multiple language bindings are possible. As an API specification targeted for application developers, SAGA is fundamentally different from the Open Grid Services Architecture (OGSA) which is a service architecture targeted for middleware. As an API, SAGA could be implemented "on top of" OGSA, including tools such as the OGSA Basic Execution Services (BES) and the Distributed Resource Management Application API (DRMAA).

Further Information: Link to the latest draft of the document or contact one of the following: Andre Merzky, Shantenu Jha, Thilo Kielmann