SAGA: A Producer and Consumer of Standards for Distributed Computing

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http://saga-project.org

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What is SAGA?

- Simple, integrated, stable, uniform and community-standard
  - Simple and Stable: 80:20 restricted scope
  - Integrated: Similar semantics & style across primary functional areas
  - Uniform: Same interface for different distributed systems
  - The building blocks upon which to construct “consistent” higher-levels of functionality and abstractions
  - OGF-standard, “official” Access Layer/API of EGI, NSF-XD
SAGA: Consumer of Standards

- **Component: saga-core implements**
  - SAGA Core API Specification - OGF, GFD.90
  - SAGA Advert API Extension - OGF, GFD.177
  - SAGA Service Discovery API Extension - OGF, GFD.144
  - SAGA Information Service Navigator API Extension - OGF, final draft

- **Component: saga-adaptor-globus** uses
  - gridftp - OGF, GFD.20
  - GSS-API - OGF, GFD.24
  - X509 - ITU-T, IETF, others

- **Component: saga-adaptor-bes** uses
  - Basic Execution Service / HPC Basic Profile - OGF, GFD.114
  - JSDL - OGF, GFD.136
  - JSDL HPC - OGF, GFD.111
  - JSDL SPMD - OGF, GFD.115
  - X509 - ITU-T, IETF, others
SAGA: The Standard Experience

- SAGA: The standard has helped in end-to-end integration
  - SAGA on every major Production CI, e.g., XSEDE, EGI, OSG
  - Academic and non-Academic, e.g., Airbus, BT

- Standards as an *important strategy* for sustainability
  - Service Discovery: We helped define the API (OGF), package developed by RAL(Fisher), gLite adaptors and our implementation used by CERN, now extending to KEK/NAREGI
  - Other examples of implementations and adaptor sharing..

- Standards as one possible route for interoperability
  - E.g., SAGA deployed and used on FutureGrid, as an access layer into many major middleware systems; simplify access to every major Production CI without AA....
    - http://www.saga-project.org/interop-demos
Focus has been on simple job/task management/data standards have a role to play in higher-level abstractions

Pilot-Jobs as one of the most successful distributed computing abstractions

- With more than a dozen plus PJ systems out there, need to void situation analogous to Workflow Systems
- After defining an underlying model of pilot-jobs (P*) can define a “well defined API” to Pilot-Jobs (called Pilot-API)

Pilot-API is now part of (emerging) OGF/SAGA resource-package, where we find semantic commonality with OCCI