

Dzero SAM-Grid plans

Lee Lueking

D0 Grid in the D0 Collaboration
Meeting

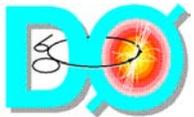
October 10, 2002



Overview



- The Ultimate Goal: SAM-Grid
- The plan for reaching the Holy Grail
- Timeline



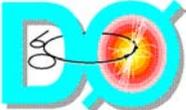


The Holy Grail



SAM and the Grid

SAM-Grid

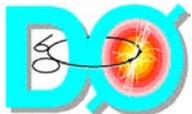




What is SAM-Grid?



- Project to include Job and Information Management (JIM) with the SAM Data Management System
- Project started in 2001 as part of the PPDG collaboration to handle DZero's expanded needs.
- Current SAM-Grid team includes:
 - ◆ Andrew Baranovski, Gabriele Garzoglio, Lee Lueking, Siddharth Patil, Abhishek Rana, Dane Skow, Igor Terekhov, Rod Walker (Imperial College), Jae Yu (U. Texas Arlington)
 - ◆ Strong collaboration with U. Wisconsin Condor team.
- **<http://www-d0.fnal.gov/computing/grid>**





Grid Team



- Igor Terekhov – CD/ODS - Team lead
- Gabriele Garzoglio – CD/ODS
- Andrew Baranovski – CD/ODS
- Siddharth Patil – CD/UTA-CSE
- Abhishek Rana - CD/UTA-CSE
- Hannu Koutaniemi – Espoo-Vantaa Institute of Technology, Finland
- Rod Walker – Imperial College
- Jae, Dane, Lee and others in D0 and CDF

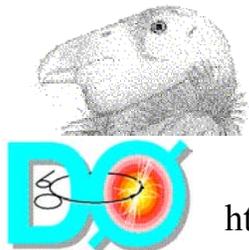




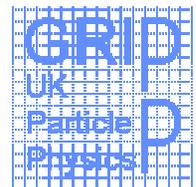
Details



- Goal: Enable fully distributed computing for the DZero (and CDF), by enhancing SAM and incorporating standard Grid tools and protocols. Developing new solutions for Grid computing in a secure and accountable environment.
- The SAM grid-ification is funded by PPDG and GridPP. The collaborators we are working with include the Condor Team (via PPDG) and Imperial College (via GridPP)
- We are communicating with other groups working on Grid technologies as well (EDG among them).
- Weekly CDF/DZero joint grid meetings (Monday 9am CT)
- We promote interoperability and code reuse



<http://www-d0.fnal.gov/computing/grid>





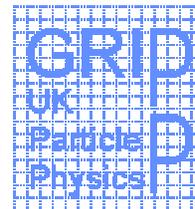
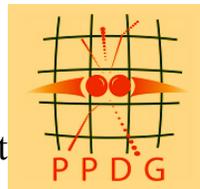
SAM-Grid Components



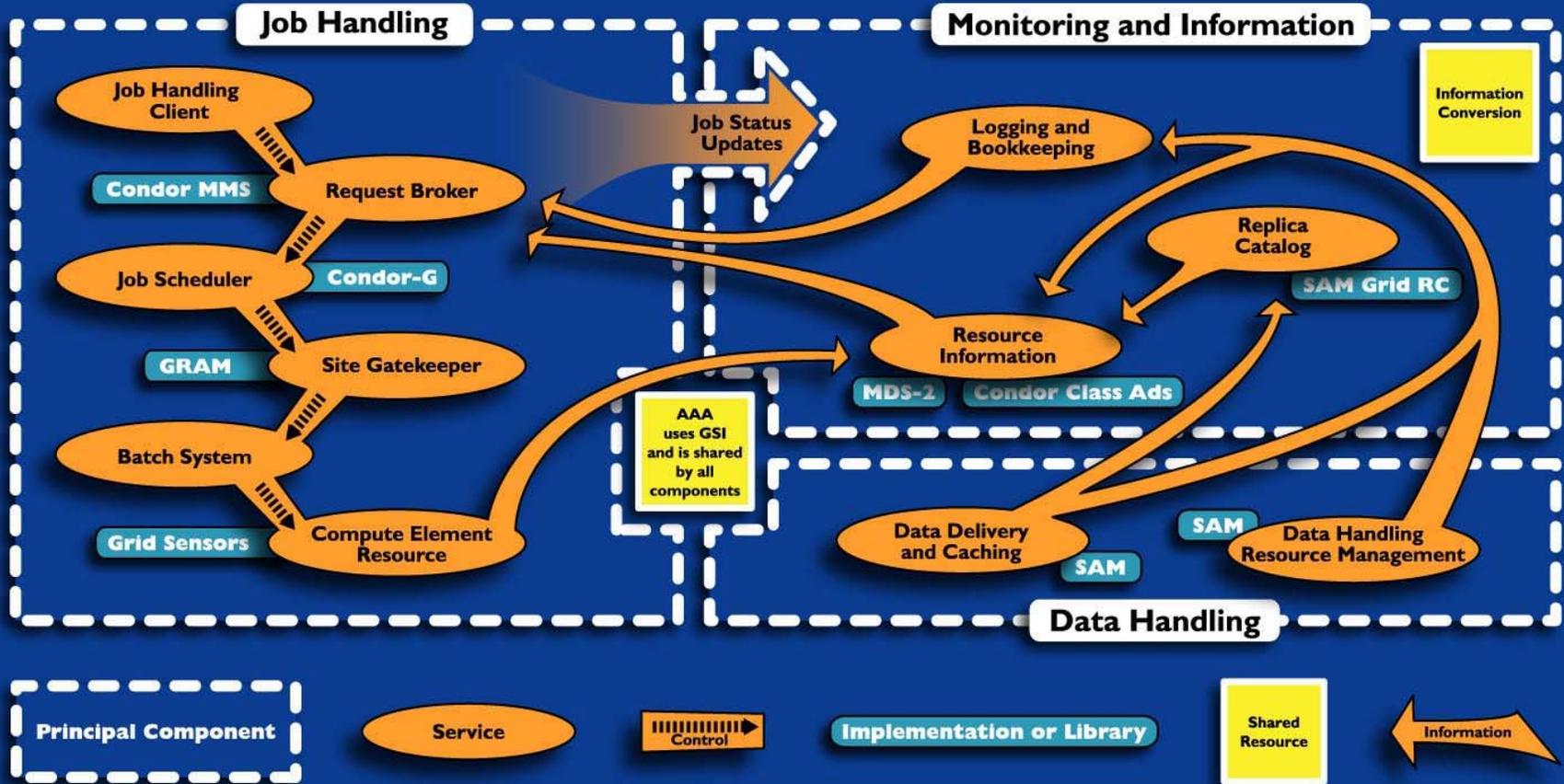
- **Job Definition and Management:** The preliminary job management architecture is aggressively based on the Condor technology provided by through our collaboration with University of Wisconsin CS Group.
- **Monitoring and Information Services:** We assign a critical role to this part of the system and widen the boundaries of this component to include all services that provide, or receive, information relevant for job and data management.
- **Data Handling:** The existing SAM Data Handling system, when properly abstracted, plays a principal role in the overall architecture and has direct effects on the Job Management services.



<http://www-d0.fnal.gov/comput>



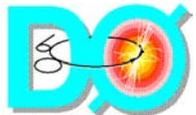
SAM-Grid Architecture





How we get to SAM-Grid

Quest for the Grail

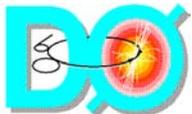




The steps in getting to SAM-Grid



- JIM Project
 - ◆ Job Management
 - ◆ Job Description Language
 - ◆ Information Service
 - ◆ Testbed deployment at selected sites. Includes 1) GRAM (Globus Resource Allocation Manager) gatekeeper and use of local scheduler, 2) MDS (Monitoring and Discovery Service)
 - ◆ Prototype is now available (Today's demo)
- Grid Security (AAA) using GSI (or other).
 - ◆ Have GridFTP working as a SAM transfer protocol
 - ◆ Latest bbftp also has GSI security plug-in feature
 - ◆ Need VO and User-level certificate authentication and authorization.
 - ◆ Job submission to authorized compute resources

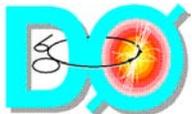




The steps in getting to SAM-Grid



- Uniform process submission interface (like sam submit)
- dCache integration for rate adapting and remote station file serving.
- Understand the modularization of the data handling and storage interfaces
- Generalized HSM Adapters to employ:
 - ◆ HPSS @ Lyons, enstore @ Lancaster, or other MSS.
 - ◆ Network attached files (file url)
 - ◆ SRM interface
 - ◆ Additional dCache features
 - ◆ Other Storage Elements like disk farm
- D0 Run Time Environment will allow running on resources not tailored to D0 (no D0 installation).
- Site Autonomous SAM station and site resource management
- One-step SAM installation and registration (In the long term)





Possible Timeline

