



Overview and Status of the GridWay Metascheduler



Alejandro Lorca

**Distributed Systems Architecture Group
Universidad Complutense de Madrid**

EGEE gLite tutorial for users and application developers

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- 1. What is GridWay?**
2. A Global Vision
3. Working Examples
4. Status

What is GridWay?

GridWay is a tool for meta-scheduling, creating a scheduler virtualization layer on top of Globus services (GRAM, MDS & GridFTP)

- For **project and infrastructure directors**
 - an open-source community project.
- For **system integrators**
 - highly modular
 - allowing adaptation to different grid infrastructures
 - supports several OGF standards.
- For **system managers**
 - scheduling framework similar to Local Resource Manager Systems
 - supporting resource accounting and defining scheduling policies.
- For **application developers**
 - implements the OGF standard DRMAA API (C and JAVA bindings)
 - compatibility of applications with LRM systems that implement the standard, such as SGE, Condor, Torque,...
- For **end users**
 - Has a LRM-like CLI for submitting, monitoring, synchronizing and controlling jobs, that could be described using the OGF standard JSDL.

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Benefits

Integration of non-interoperable computational platforms (Organization)

- Establishment of a uniform and flexible infrastructure
- Achievement of greater utilization of resources and higher application throughput

Support for the existing platforms and LRM Systems (Sys. Admin.)

- Allocation of grid resources according to management specified policies
- Analysis of trends in resource usage
- Monitoring of user behavior

Familiar CLI and standard APIs (End Users & Developers)

- High Throughput Computing Applications
- Workflows

Features

Workload Management

- Advanced (Grid-specific) scheduling policies
- Fault detection & recovery
- Accounting
- Array jobs and DAG workflows

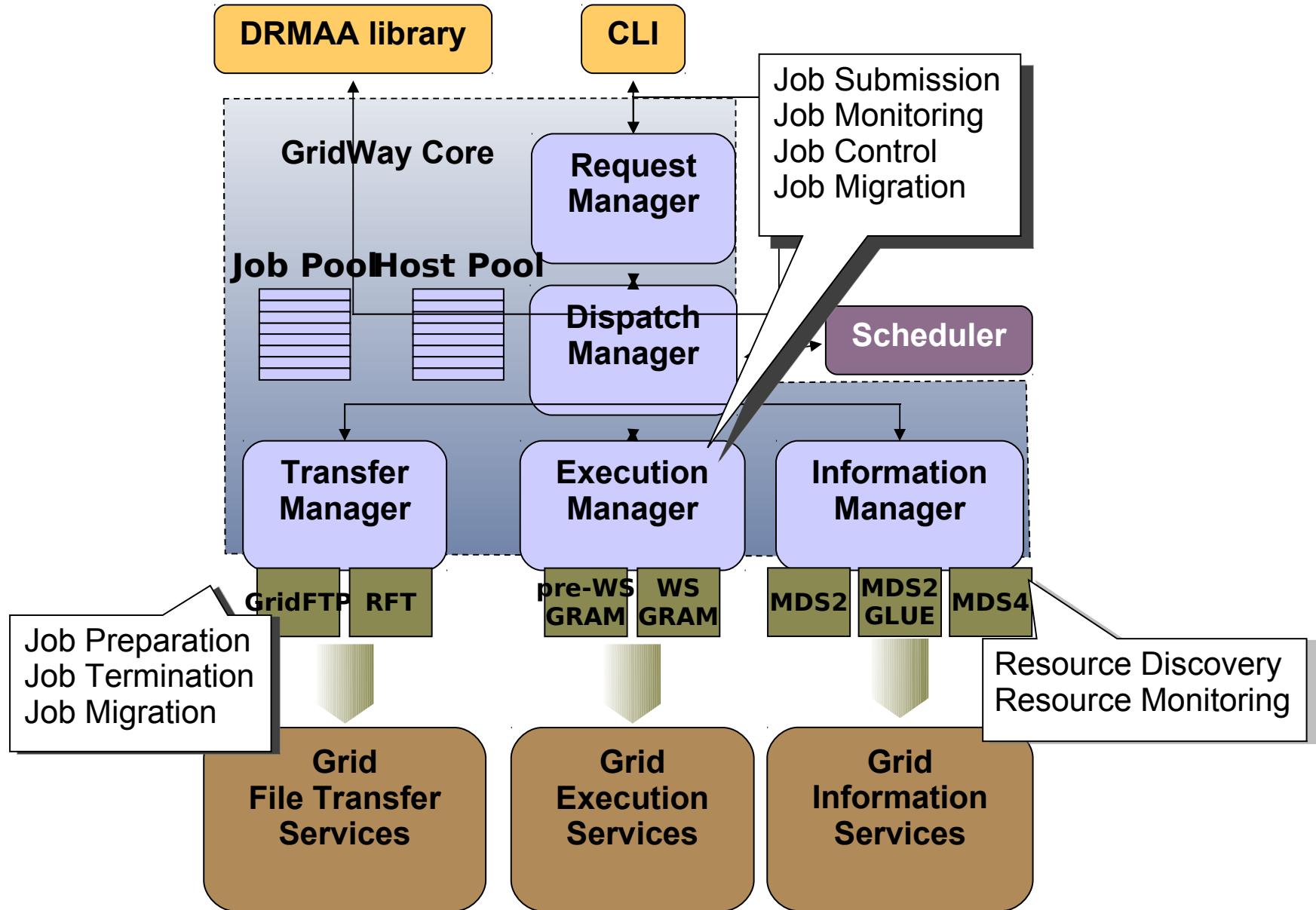
User Interface

- OGF standards: JSDL & DRMAA (C and JAVA)
- Analysis of trends in resource usage
- Command line interface, similar to that found on local LRM Systems

Integration

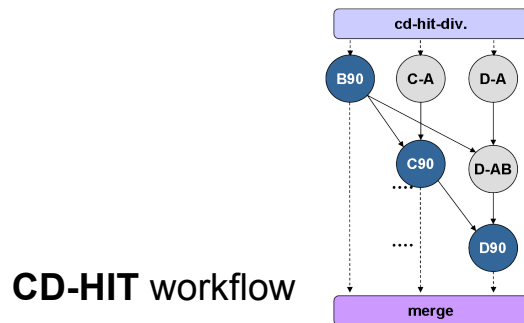
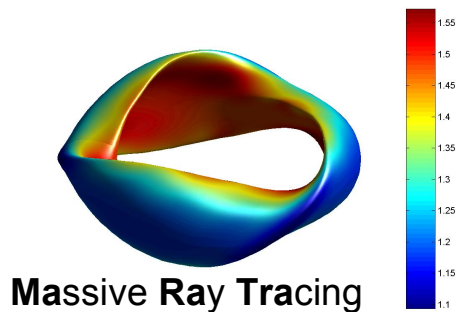
- Straightforward deployment as new services are not required
- Interoperability between different infrastructures

GridWay Internals

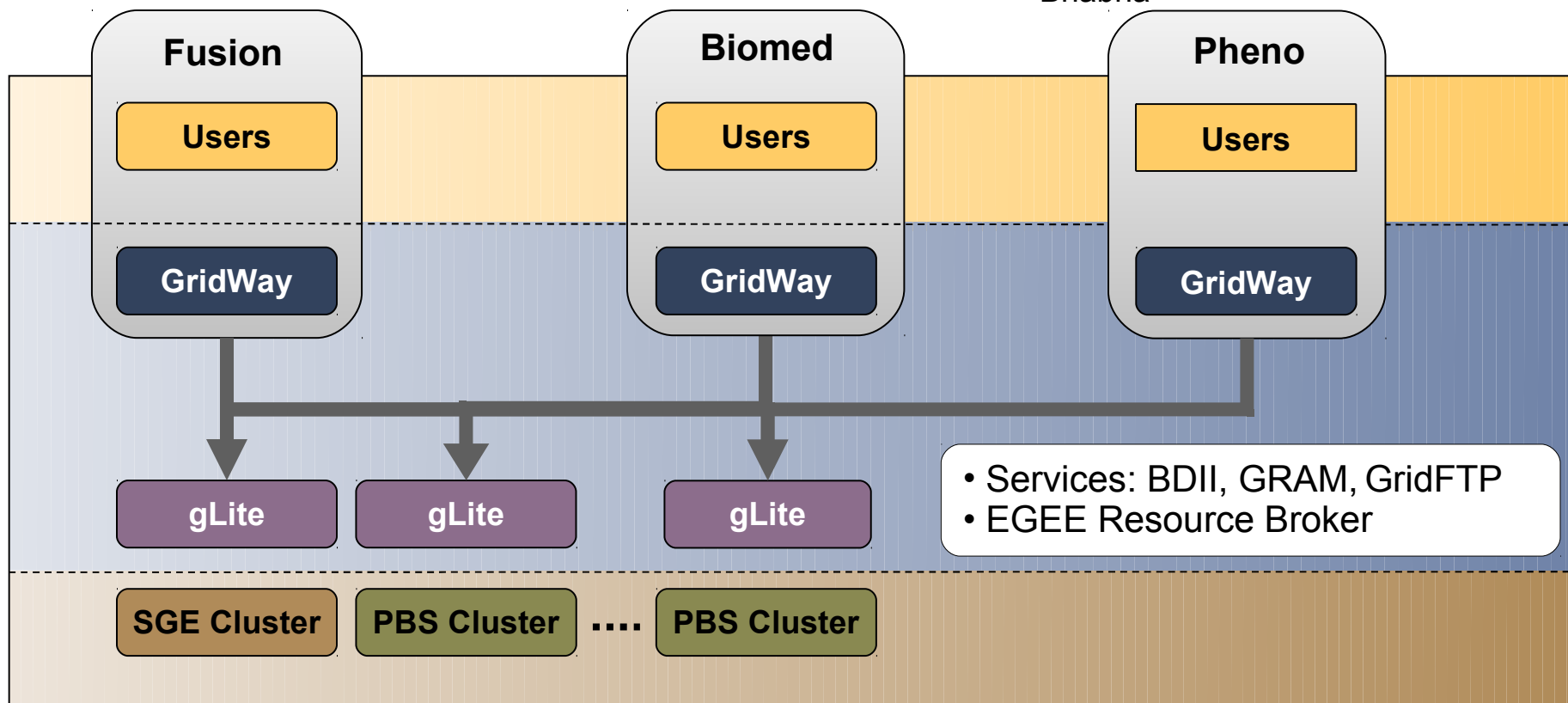
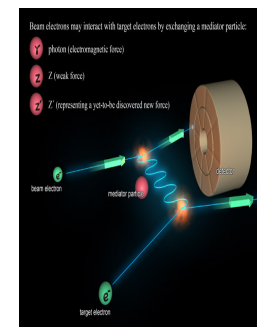


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Different scientific-domain



AITALC code
Bhabha

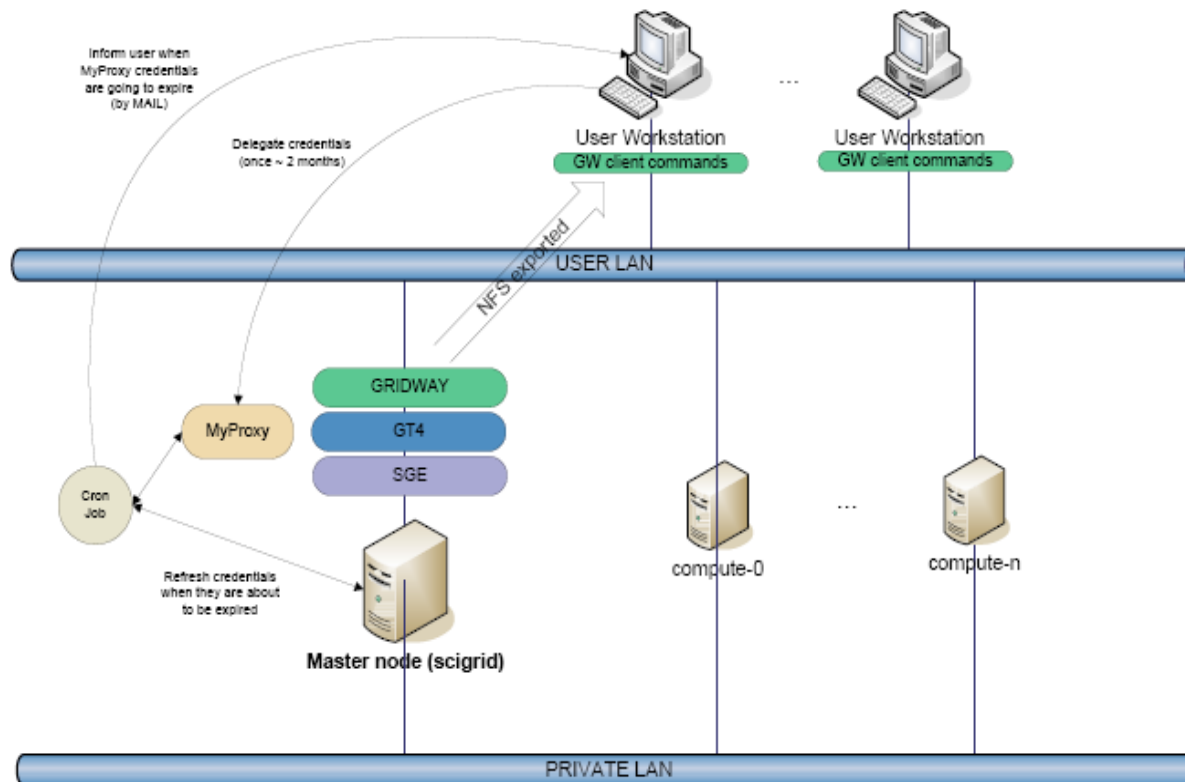


Enterprise Grids: Examples

European Space Astronomy Center

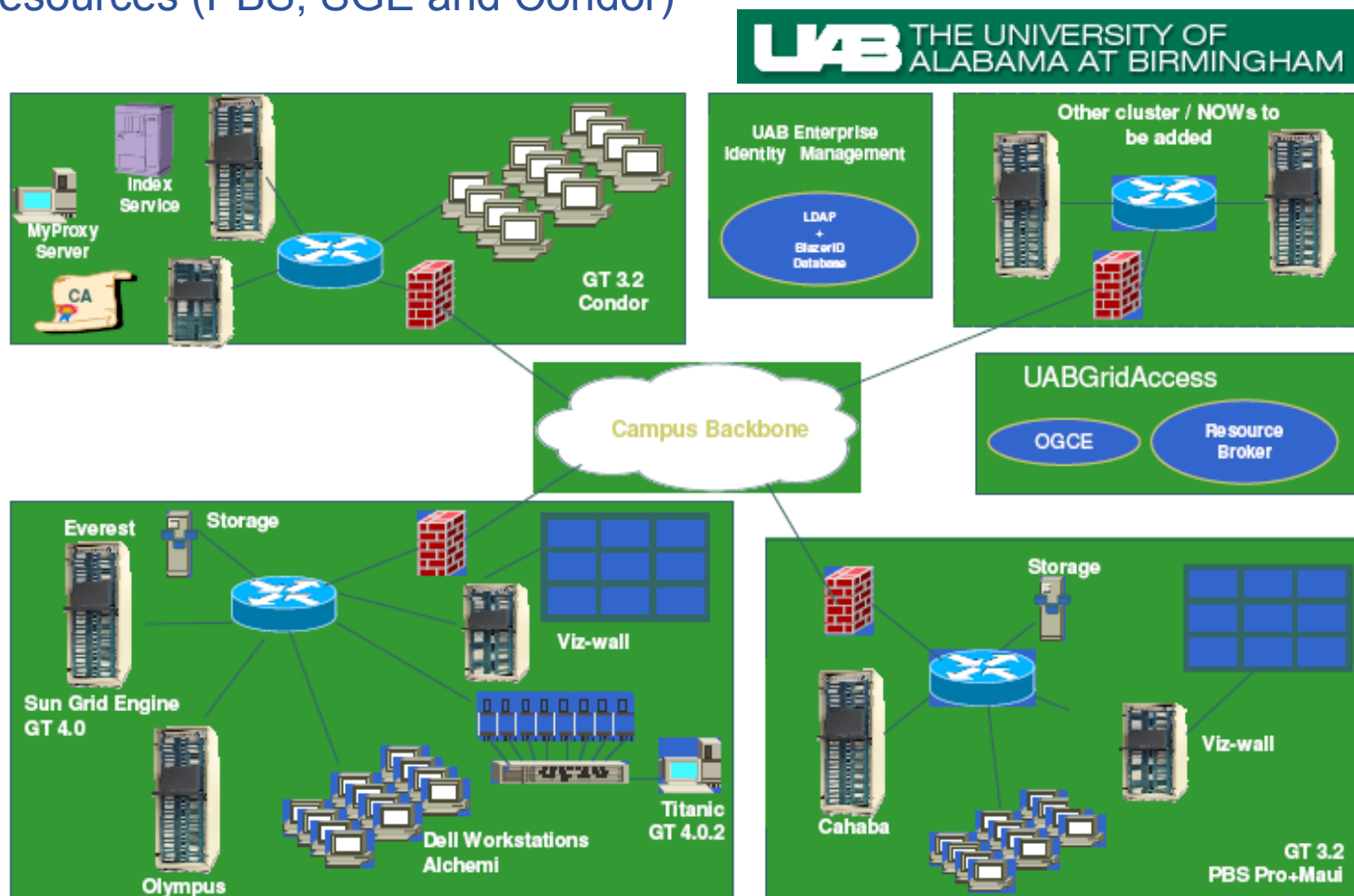


- Data Analysis from space missions (DRMAA)
- Site-level meta-scheduler
- Several clusters



UABGrid, University of Alabama at Birmingham

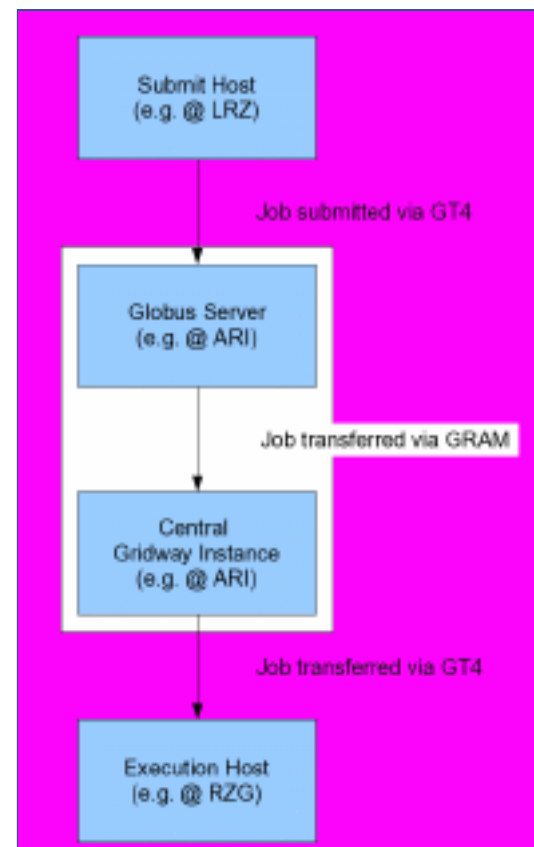
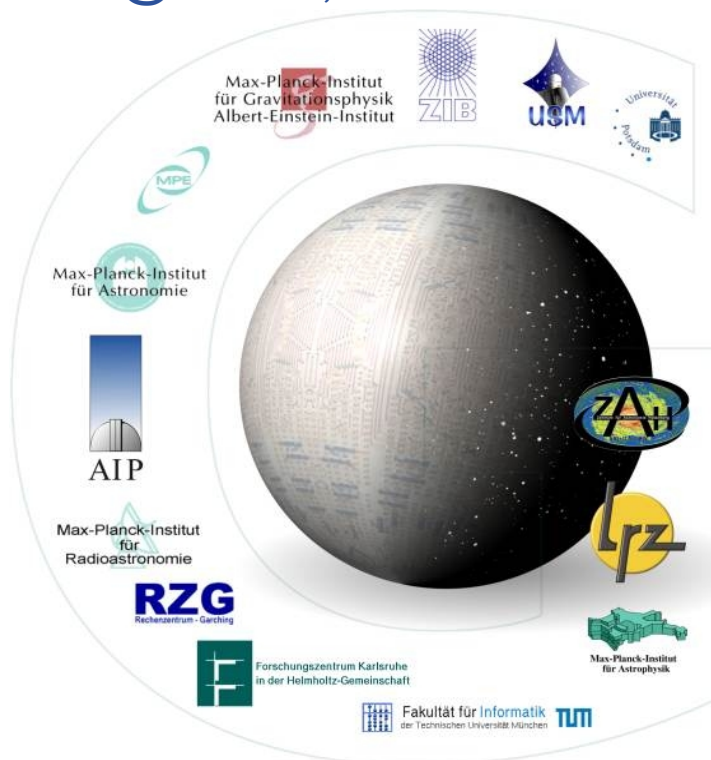
- Bioinformatics applications
- Campus-level meta-scheduler
- 3 resources (PBS, SGE and Condor)





AstroGrid-D, German Astronomy Community Grid

- Collaborative management of supercomputing resources & astronomy-specific resources
- Grid-level meta-scheduler (GRAM interface)
- 22 resources @ 5 sites, 800 CPUs



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Latest version 5.6.1 (Released 21/01/2010)

Bug fixing campaign

- Proxy user identification properly working
- Installation in older machines (lower autotools version)
- Annoying delay-bug (check proxy) when proxy is there
- Capture complete `HOSTNAMES` for messaging
- Include full `QUEUE_ACCESS` info for all Vos
- ...

SSH Driver available

- Faster and unique resource discovery

LDAP server discovery

- Faster and unique resource discovery

Output of cli available in XML format

- Allowing easy implementation of add-ons
- Following a well-defined XML Schema (validation)

Google Summer of Code 2009 projects

- **2 accepted project with the Globus Alliance**

- 3-months projects to **develop and learn** free open source code

- **GUI for GridWay**

- Developed by Srinivasan Natarajan (mentor J.L Vázquez-Poletti)
 - Easy to use GUI
 - Based on GTK+
 - Provide full cli features

- **GridWay + GoogleMaps mashup**

- Developed by Carlos Martín (mentor A. Lorca)
 - Information from GridWay output geolocalized
 - Based on Google Web Toolkit
 - Show real-time status

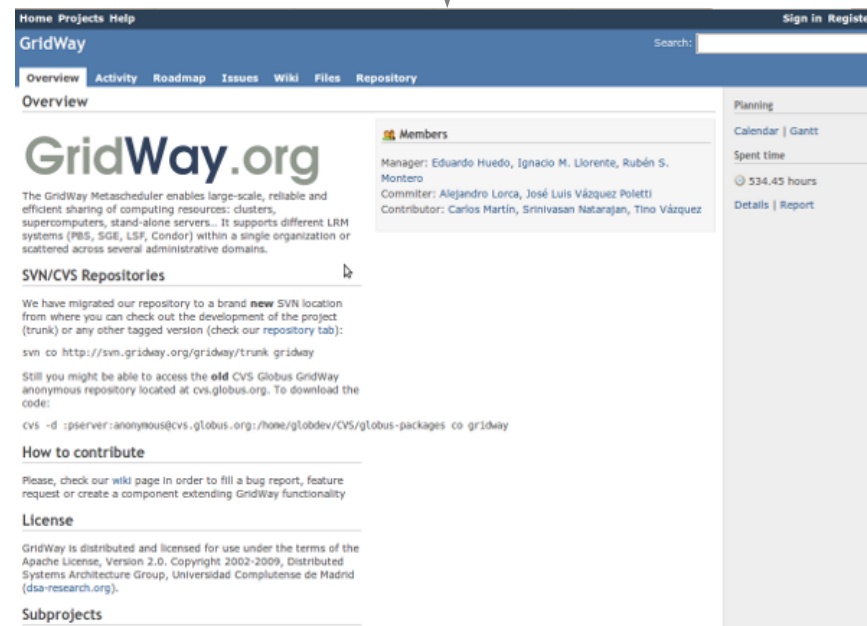
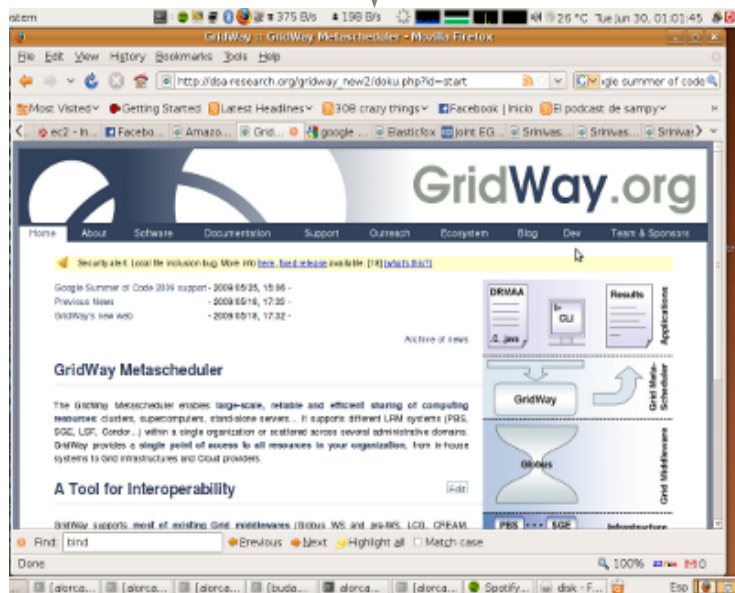


New web page design

A renovated web portal has been designed <http://gridway.org>

According to the new image emerging at dsa-research.org

- **Simplify** user interaction
- Find out the content **faster**
- Paying attention to improve the existing **good documents**
- New **development** web platform <http://dev.gridway.org>



Thank you for your attention!