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The GridWay Meta-scheduler

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Contents

- **What is GridWay?**
- **Architecture**
- **Components**
- **Scheduling Policies**
- **Examples of Grid Deployments**
  - Enterprise Grids
  - Partner Grids
  - A Tool for Interoperability
- **Release Schedule**

What is GridWay?

The GridWay meta-scheduler is a scheduler virtualization layer on top of basic Globus services (GRAM, MDS & GridFTP)

For the user

- A LRM-like environment for submitting, monitoring, and controlling jobs

For the developer

- An standard-base development framework for Grid Applications

For the sysadmin

- A policy-driven job scheduler
- User-side Grid Accounting

For the Grid architect / solution provider

- A modular component to use different infrastructures
- A key component to deploy different Grids (enterprise, partner, utility…)

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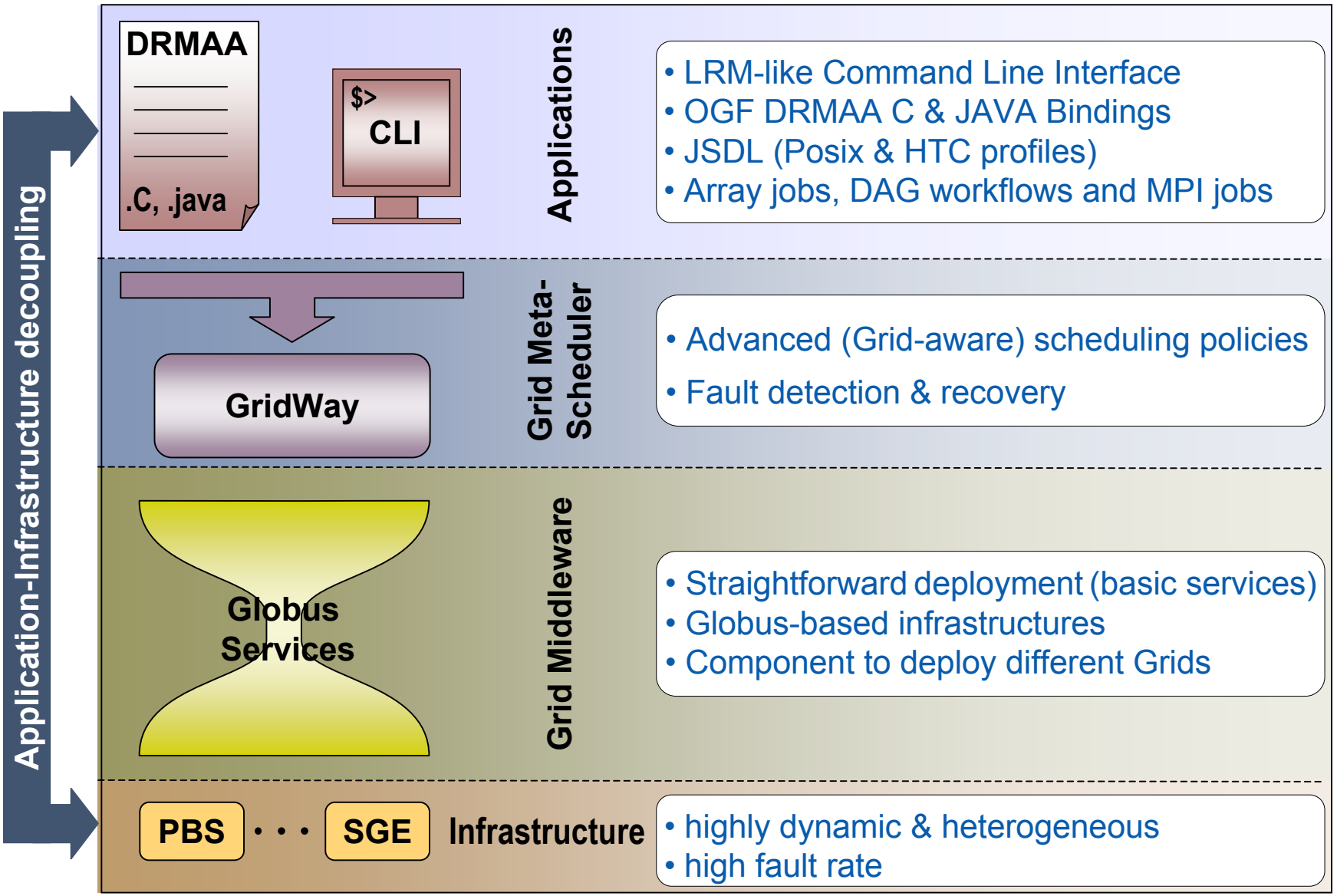
Architecture



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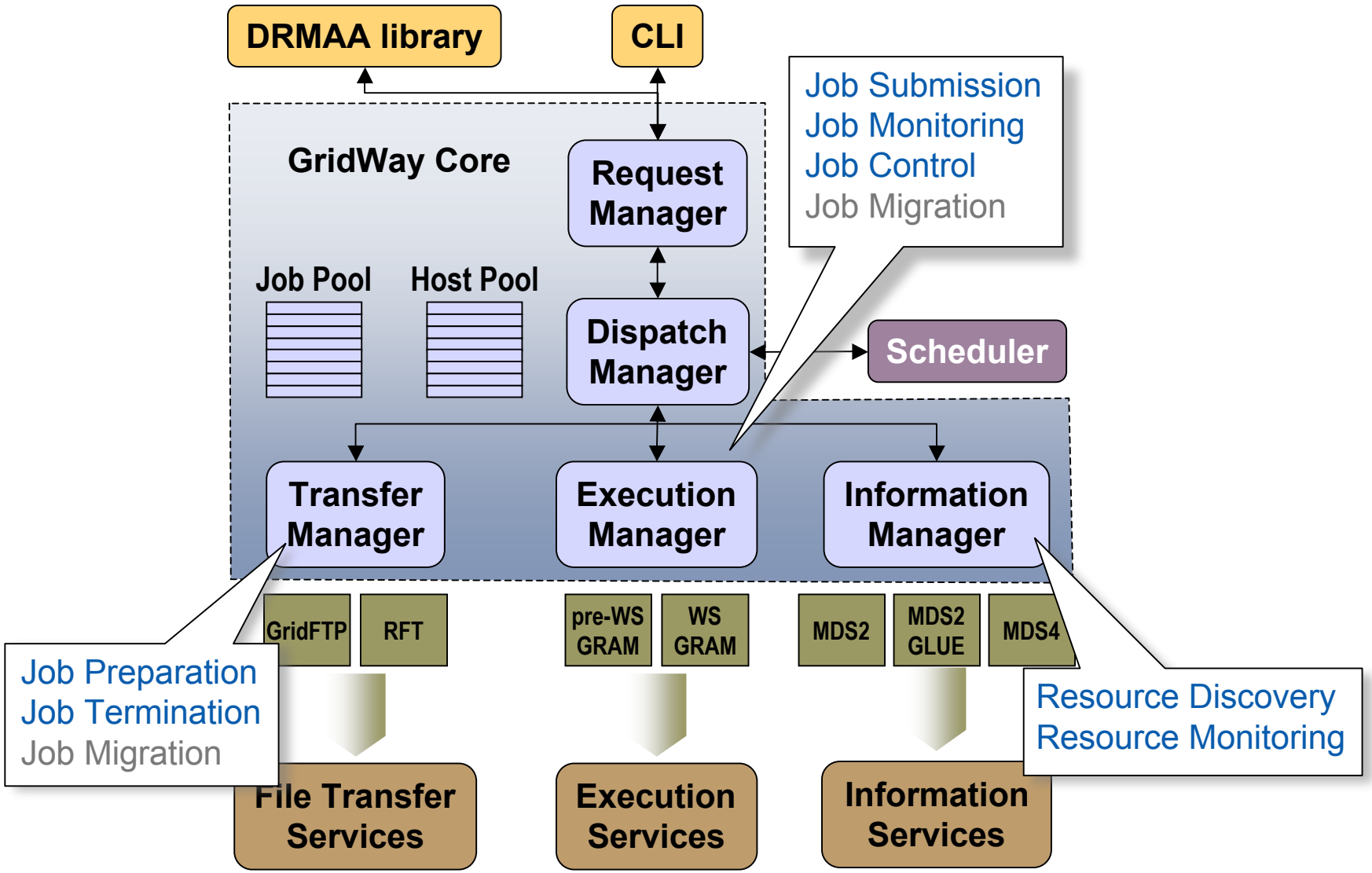
Components



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Scheduling Policies

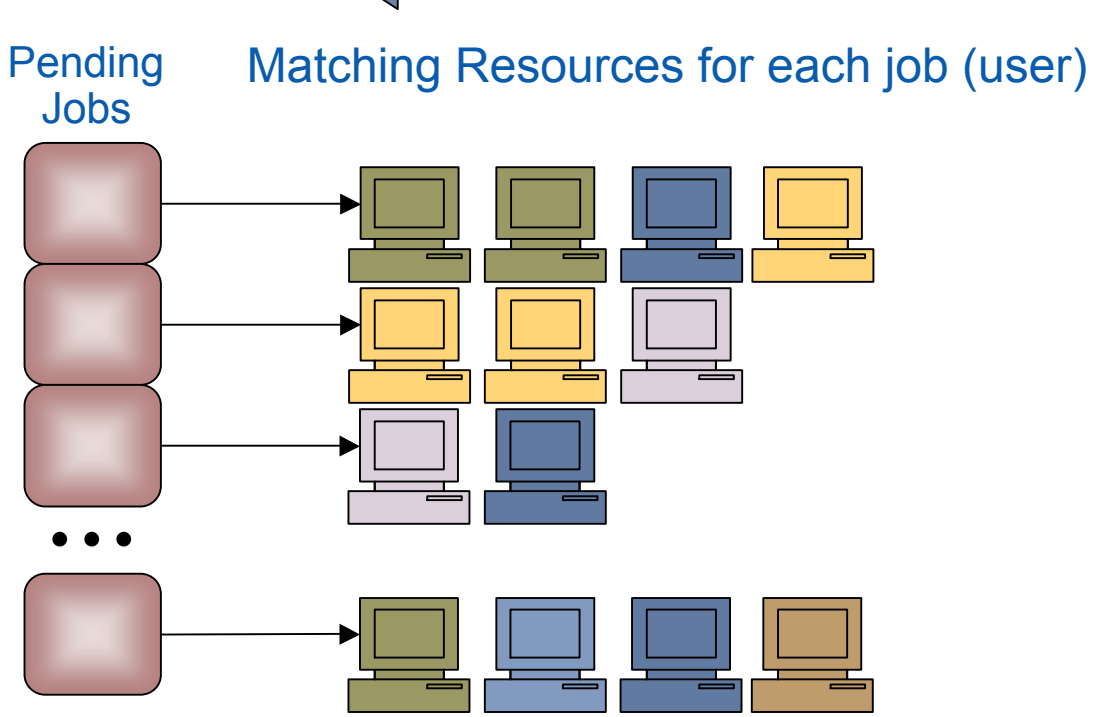
Resource Policies

- Rank Expressions
- Fixed Priority
- User Usage History
- Failure Rate

Grid Scheduling = Job + Resource Policies

Job Policies

- Fixed Priority
- Urgent Jobs
- User Share
- Deadline
- Waiting Time



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Enterprise Grids

Characteristics

- "Small" scale infrastructures (campus/enterprise) with one meta-scheduler instance
- Resources within the same administration domain that may be running different LRMS and be geographically distributed

Goal & Benefits

- Integrate heterogeneous systems
- Improve return of IT investment
- Performance/Usage maximization

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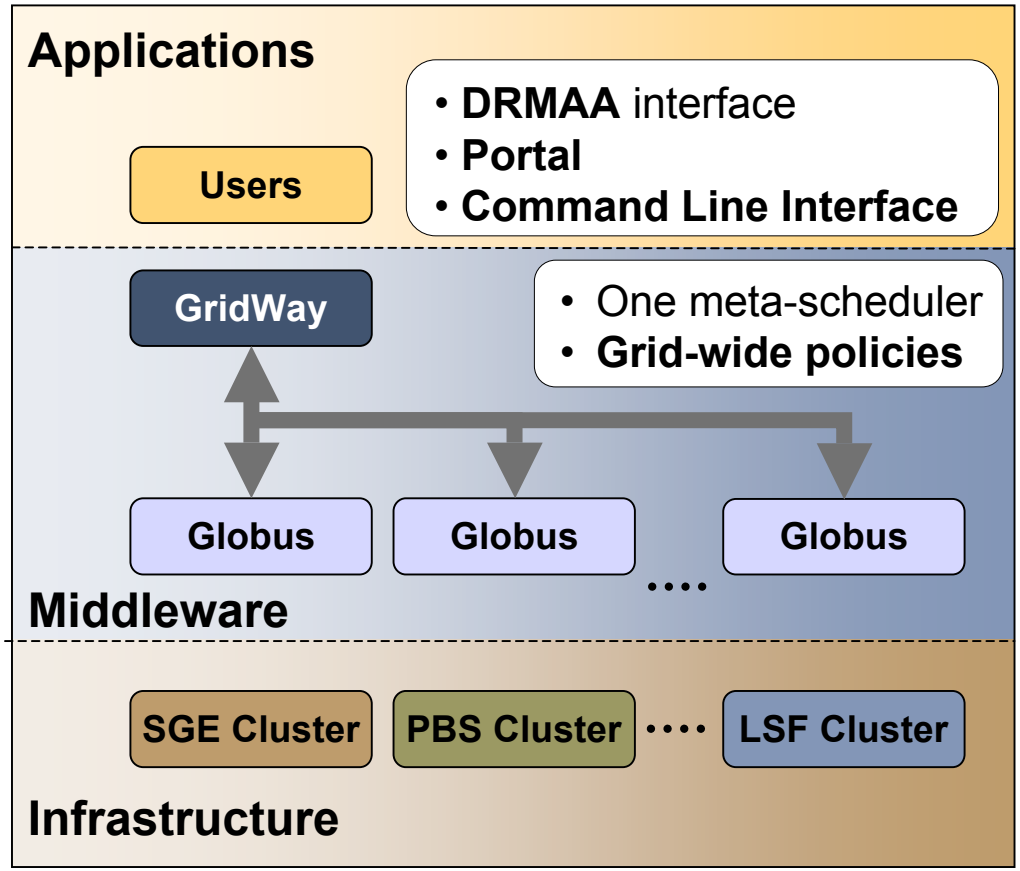
Enterprise Grids

Architecture



Examples

European Space Astronomy Center
- Data Analysis from space missions
- DRMAA

UABGrid, University of Alabama
- Bioinformatics applications

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Partner Grids

Characteristics

- "Large" scale infrastructures with one or several meta-schedulers
- Resources belong to different administrative domains

Goal & Benefits

- Large-scale, secure and reliable sharing of resources
- Support collaborative projects
- Access to higher computing power to satisfy peak demands

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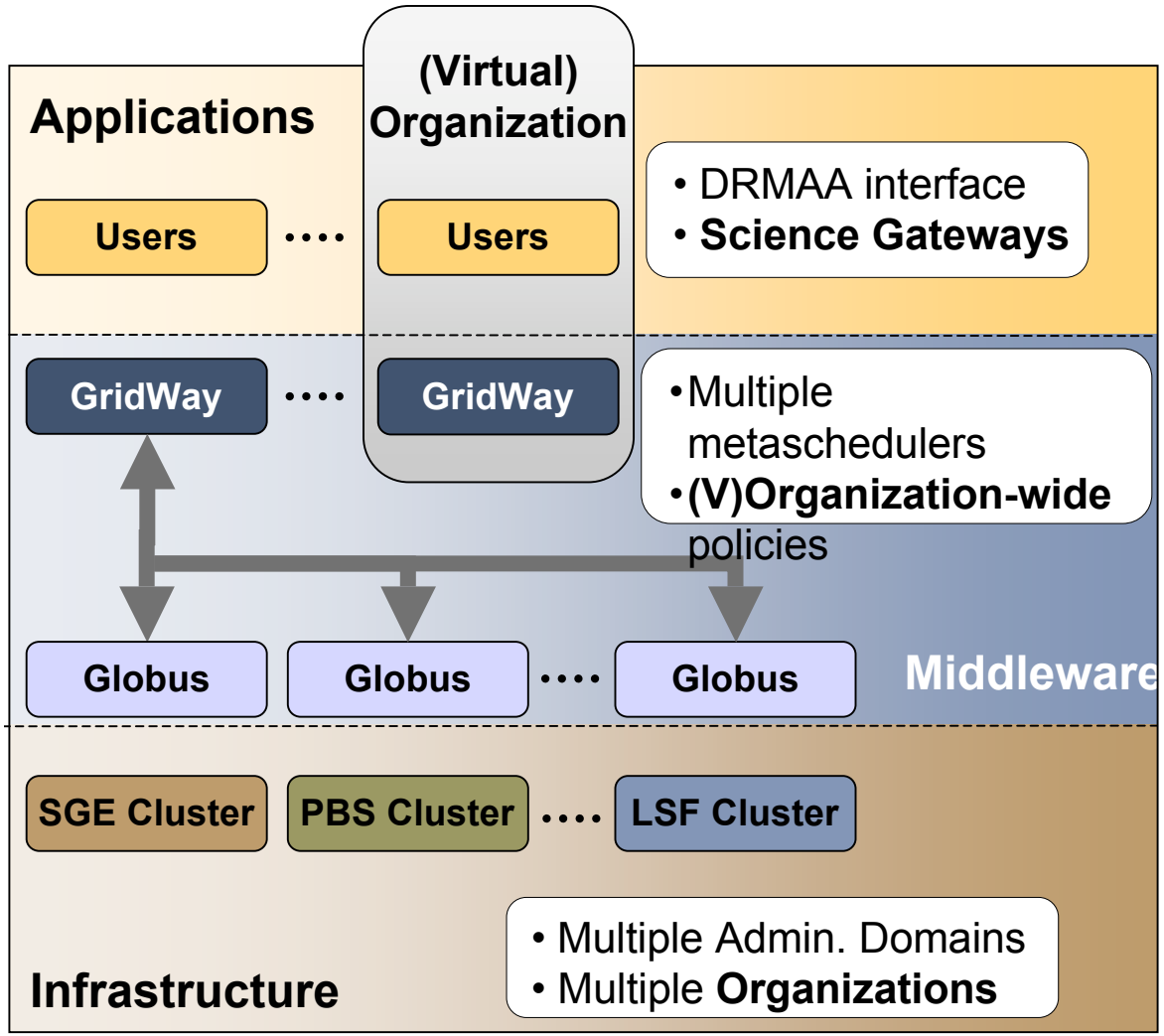
Partner Grids

Architecture



Examples

EGEE-II

- gLite-LHC interoperability
- Virtual Organizations
  Fusion: Massive Ray Tracing
  Biomed: CD-HIT (Worflow)

AstroGrid-D, German Astronomy Community Grid

- Supercomputing resources
- Astronomy-specific resources
- GRAM interface

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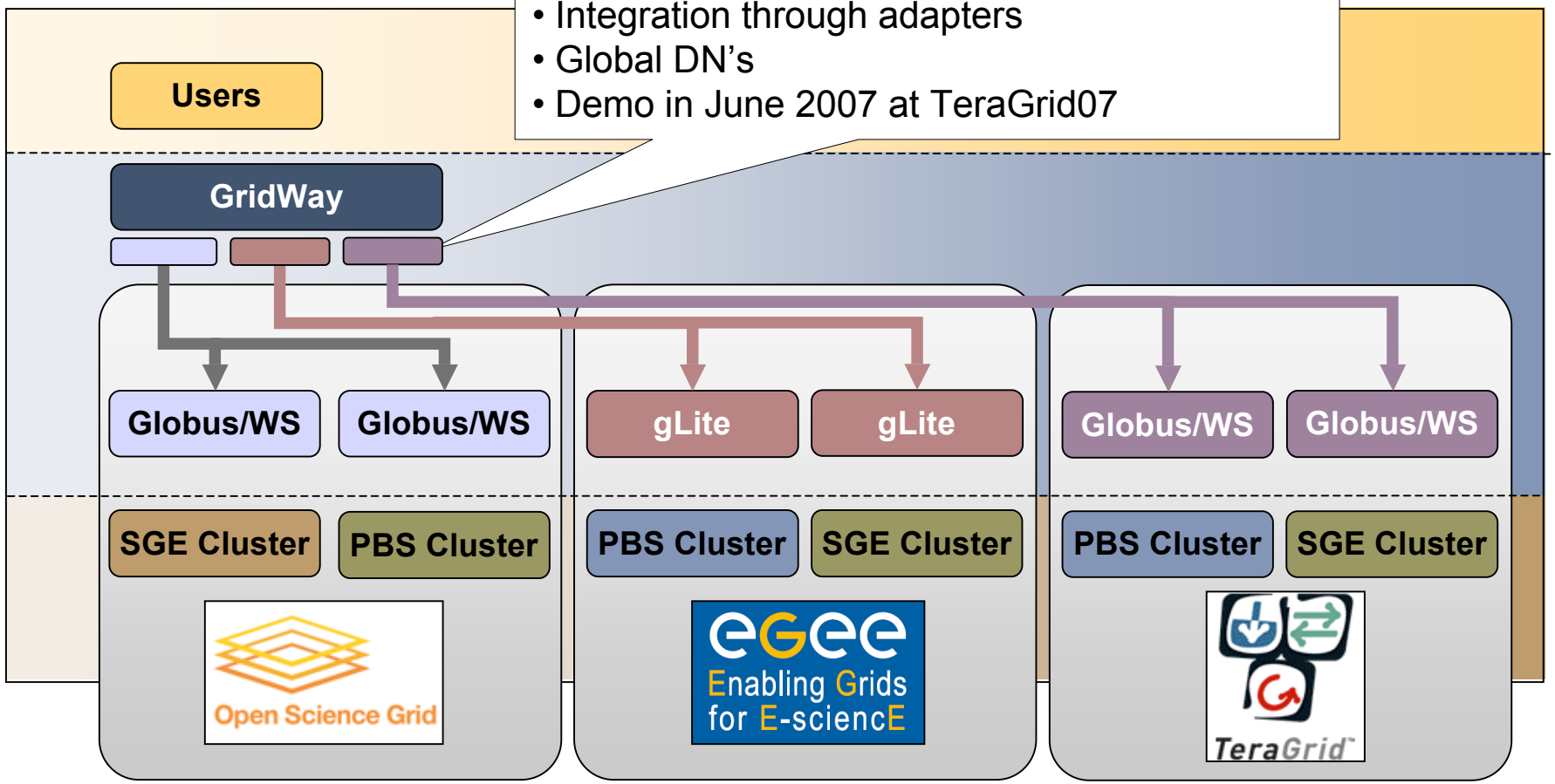
A Tool for Interoperability

- Different Middlewares (e.g. WS and pre-WS)
- Different Data/Execution architectures
- Different Information models
- Integration through adapters
- Global DN's
- Demo in June 2007 at TeraGrid07



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Release schedule

- 5.2 (minor) released on February 28th
  - Support for OGF standard JSDL and MPI jobs
  - State-of-the-art scheduling policies
  - Test suite
  - Installation based on auto-tools
- 5.2.2 (incremental) released on July 7th
  - Included in GT 4.0.5
  - Better integration with GridGateWay
  - Bug fixes
- 5.2.3 (incremental) released on October 8th
  - New Information MAD
  - Bug fixes
- 5.3 (minor) to be released on October 22nd
  - OGF standard DRMAA 1.0, with bindings for Perl, Ruby and Python
  - DAGMan