



GT4 Status and Experience: Condor-G

Jaime Frey

Computer Sciences Department
University of Wisconsin-Madison

jfrey@cs.wisc.edu

<http://www.cs.wisc.edu/condor>



What Is Condor-G

- > Part of Condor
 - η High-throughput computing system
 - η University of Wisconsin - Madison
- > Condor-G
 - η Job management and scheduling for grids
 - η Uses GSI, GRAM, GASS, RFT, GridFTP



What Condor-G Provides

- Client-side persistent job queue
- Fault tolerance
- Logs of job activity
- Scheduling (Match-Making)
- Job workflows (DAGMan)



Past Experience

- > Problems discovered with GRAM in GT1/2
- > We worked with Globus to address them
 - η Some fixed in server
 - η Some worked around in client
- > Full fixes avoided because they required...
 - η Breaking backwards compatibility
 - η Re-architecting whole system
- > GT4 provides clean slate to do things right



Fault Tolerance

> GT2

- η Client restarts server processes
- η No job lease/lifetime

> GT4

- η No client action for server recovery
- η WSRF lifetime management



Scalability

> GT2

- η One process per submitted job
- η For each job, actively query job status every 10 seconds

> GT4

- η One process for all jobs
- η Snoop batch system logs to query job status



Load Management

> GT2

η Client can DoS server with job requests

> GT4

η Server can throttle job requests



Present Work

- > Full support for both GT2 and GT4 GRAM in Condor-G
- > Use Java client bindings
- > Ongoing testing and debugging
 - η Chimera Virtual Data System
 - η Analyze problems in large workflows
 - η Fix problems in both Condor-G and Globus
 - η Led by Jens Voeckler





Future

- > Aggregate operations
 - η Job status queries (or equivalent method to handle lost notifications)
 - η Lifetime extension
- > Improved load management
- > C client bindings
- > Workspace Management Service



Thank You!

Any Questions?



GAHP

