GT4 Status and Experience: Condor-G

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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
  - Some fixed in server
  - Some worked around in client
- Full fixes avoided because they required...
  - Breaking backwards compatibility
  - Re-architecting whole system
- GT4 provides clean slate to do things right
Fault Tolerance

- **GT2**
  - Client restarts server processes
  - No job lease/lifetime

- **GT4**
  - No client action for server recovery
  - WSRF lifetime management
Scalability

- GT2
  - One process per submitted job
  - For each job, actively query job status every 10 seconds

- GT4
  - One process for all jobs
  - Snoop batch system logs to query job status
Load Management

- **GT2**
  - Client can DoS server with job requests

- **GT4**
  - 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
  - Chimera Virtual Data System
  - Analyze problems in large workflows
  - Fix problems in both Condor-G and Globus
- Led by Jens Voeckler
Future

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

Any Questions?
Condor-G (C++)

CREATE_JOB
3 foo.edu ...

SUCCESS

GAHP (Java)

GT4 Server

SOAP Request

SOAP Reply