

# INFN-Grid TB meeting

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## Developing a Consistency Service

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# Consistency and Replication

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- ☐ Replication is used in Grids for data;
- ☐ replication may be used for application metadata
- ☐ and for middleware metadata (replica catalogs and indices).
- ☐ If the replicated (meta)data are writable, then consistency must be enforced.

# Work done

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- Preliminary architectural design.
- Simulation of two simple protocols.
  - The simulator (extended OptorSim) is also a prototype.
- Prototype Web service implementation based on OGSI/Globus 3.0.1 (H. Stockinger).
- Master's thesis (G. Pucciani).
- Presentation at ACAT03 (A. Domenici, F. Donno, G. Pucciani, H. Stockinger, K. Stockinger).

# Work program proposal (1)

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- Requirements definition (degree of consistency required by appl'ns, access patterns...), selection of a few high level design options (alternate protocols or algorithms).
  - Priority will be given to reqmts for middleware metadata (catalogs and indices).
- Definition of figures of merit to compare alternate solutions (e.g., number of failed accesses, conflicts...).

6 months, F. Donno, A. Domenici, contributions from everyone.

# Work program proposal (2)

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- Evaluation of the OGSA model(s) and of the Globus 4 implementation.
  - 3 months, F. Donno, A. Domenici, contributions from G. Pucciani.
- Implementation of a simple consistency service, built upon the work done so far.
  - 6 months, G. Pucciani, contributions from A. Domenici, F. Donno.

# Work program proposal (3)

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## □ Definition of a high level architecture:

- RCS interface towards other middleware components (use abstraction layer to make RCS adaptable to various technologies).
- Internal interfaces of yet unspecified/underspecified RCS components.
- Requirements specification for locking service.
- Database schema for RCS.
- State-of-the-art review to select appropriate DB systems.
- 12 months, F. Donno, A. Domenici, L. Magnoni, G. Pucciani, R. Zappi.

# Work program proposal (4)

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## ☐ Simulation

- Basic statistical analysis of current results.
- Evaluation of the OptorSim tool (new release), possible proposals for improvements or adaptations.
- 1 month, A. Domenici, contributions from G. Pucciani.