Enabling Grids for E-science in Europe

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Generic Applications Requirements

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EO Applications Requirements

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- Improvement on metadata handling (RMC, Spitfire)
- Improvement on security (restricted access, groups and roles within a VO)
- Improvement on scalability (e.g. number of files, file sizes).
- Improvement of the performance of most of the functionalities.
- Support for parallel programs (e.g. MPI, PVM)

Climate Applications Requirements

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• Handling of large data sets stored in different places and formats: This may include data sets combining hundred-thousands of files or other data objects for one analysis

• A secure but comfortable access to the mass storage archives (single-sign-on, data security, resource sharing)

• Resource broker services for transparent access to data and processing tools

• Concepts for load balancing, quality of service and assurance of data quality

• Definition of the role and permission for each partner of a VO to access metadata and data

• Integration of different scripting languages and COTS.

Solid Earth Physics Applications Requirements

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• MPI with Mirinet, SCI or other fast network and Fortran 90: The simulation proposed requires the possibility to submit a script and not only the executable. Modeling and imaging are also intrinsically parallel applications using large memory, medium to large exchanges between computing nodes with MPI, local scratch disk space and are heavy cpu intensive. Another requirement, not encountered in DataGrid, is the consistency between the compiler and libraries available on the UI and the ones needed by the cluster at the working node where the job is executed.

• Definition of the role and permission for each partner of a VO to access metadata and data

• Operational databases: update, mirroring, integrity, secure access and metadata handling.

• Secure access to external database such as the GPS and seismological databases

Geophysics Applications Requirements

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• MPI with Mirinet, SCI or other fast network and Fortran 90: The simulation proposed requires the possibility to submit a script and not only the executable. Modelling and imaging are also intrinsically parallel applications using large memory, medium to large exchanges between computing nodes with MPI, local scratch disc space and are heavy cpu intensive. Another requirement, not encountered in DataGrid, is the consistency between the compiler and libraries available on the UI and the ones needed by the cluster at the working node where the job is executed.

• Definition of the role and permission for each partner of a VO to access metadata and data

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Earth Sciences Requirements (long form with priorities)

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external document

Astro-particle Physics Requirements (MAGIC Telescope)

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- The security of all distributed system is an important topic. But the astroparticle physics community is purely scientific and therefore the security problems will not be as great as in field like medicine, pharmacy or genomic applications. This offers the use of already existing security mechanisms like the Globus Security infrastructure, etc. without any longer time lag due to not available stricter Security and Privacy mechanisms.

Computational Chemistry Requirements

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