



National Technical University of Athens

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Expertise on Grids

- *GRID architecture:*

- ✓ Core Architecture team of the Next Generation Grid
- ✓ Definition of architecture for Mobile Grids
- ✓ Architecture Technical Working Group leadership
- ✓ Analysis of detailed descriptions of scenarios and realization of a categorization and grouping in order to align them on the architectural layer

- *GRID workflow:*

- ✓ Design and implementation of workflow engine for grid environments.
- ✓ End-to-end-workflow mapping
- ✓ Design and implementation of semantic description for workflow mapping onto services.

Expertise on Grids

- *GRID resource management:*

- ✓ Definition, control and scheduling for Quality of Service (QoS)
- ✓ Scheduling evaluation and its relation to the charging policy
- ✓ Design and development of scheduling algorithms
- ✓ Fault tolerance and reliability

- *GRID QoS modelling:*

- ✓ Modelling of workload estimation on the client's side
- ✓ Modelling of capacity estimation on the supplier's side
- ✓ End-to-end-performance modelling

Expertise on Grids

•*GRID middleware:*

- ✓ Design and Implementation of Core Grid Services
- ✓ Co-development of the GRIA middleware

GRIA middleware tackles the commercial and business orientation of Grids. This middleware enables commercial use of the Grid in a secure, interoperable and flexible manner enabling industrial users to trade computational resources on a commercial basis to meet their needs more cost-effectively; service providers to rent out spare CPU cycles, thus attaining better utilization; and clients to hire those CPU cycles, thus providing them with access to HPC when they need it. GRIA supports well established B2B processes & trust models and makes use of business models, processes and semantics to allow resource owners and users to discover each other and negotiate terms for access to high-value resources.

Expertise on Grids

- *GRID Portals:*

- ✓ Design and Development of Grid Portals as building tool for Virtual Organisations (VO)
- ✓ Development of the plugin for the adaptation of the GRIA middleware to the a VO portal.
- ✓ Working on the compatibility and interoperability issues of SGAS with GRIA and on the feasibility of SGAS integration into the SPA system.
- ✓ Identification of the needs that mandate the employment of Grid Portal environments
- ✓ Portal semantics

Expertise on Grids

- ***GRID monitoring and metering***

- ✓ Eg. The Metering service is a service in charge of recording performance parameters related to the resources that the servers hosting the E-Health services dedicate to their execution. Implemented on GT4.

- ✓ Eg. QoS Statistics Service is a service responsible for providing historical data for past job executions. These data are used for QoS and reliability services.

- Implemented on GRIA.

- ***GRID Applications***

- ✓ 3D Animation

- ✓ E-Health

- ✓ E-Learning

- ✓ CFD

- ✓ Supply Chain management