

Highly predictable cluster for Internet Grids

HPC4U



Commodity-based Grids are spreading across the industry, supported by their excellent cost/performance ratio. However, they lack reliability, usability and manageability. The HPC4U project will address these issues and provide, as a solution, generic and modular Grid middleware software covering multiple administrative domains to enable an increased fault tolerance level.

The **goal** of the HPC4U project is to expand the potential of the Grid approach to complex problem solving through the development of software components for dependable and reliable Grid environments and combining this with service level agreements (SLAs) and commodity-based clusters providing quality of service (QoS). Development of HPC4U will take place in a Grid context following the standards of the Global Grid Forum (GGF).

The main **scientific and technological objectives** of the HPC4U project are to:

- provide predictable and reliable middleware for clusters built from commodity-off-the-shelf components, which will enable fault tolerance based on checkpointing and job migration in the Grid;
- deliver an SLA-aware resource management system providing a reliable and sharp statement about the service level for a submitted job, which is fulfilled despite hardware or software failures;
- provide Grid middleware, supporting multiple SLA-aware resource management systems in multiple administrative domains, that is aware of available redundant resources, which can be used in case of failure.

A consistent realisation of this vertical approach based on existing products and middleware is the main goal of the HPC4U project.

The **results** of HPC4U will be a mix of open source and proprietary software embedded in two outcomes:

- the SLA-aware and Grid-enabled resource management system includes SLA negotiation, multi-site SLA-aware scheduling, security, and interfaces for storage, checkpointing and networking support. It will be multi-platform in nature and available as open source;

the second HPC4U outcome will be a vertically integrated commercial product with proprietary Linux-specific developments for storage, networking and checkpointing. This outcome will demonstrate the entire, ready-to-use HPC4U functionality (job checkpointing, migration and restart) for Grids based on Linux architectures.

Project partners

Organisation name and country

MEIOSYS SA	FR
FUJITSU SYSTEMS EUROPE LIMITED	UK
STORAGE AGENCY SARL	FR
DOLPHIN INTERCONNECT SOLUTIONS AS	NO

Contract number
511531

Type of project
Specific targeted research project

Project coordinator
MEIOSYS SA

Contact person
Géry Schneider
42 av. du Général de Crouette
F-31100 Toulouse
schneider@meiosys.com

Project website:
<http://hpc4u.cetic.be/>

Maximum Community contribution to project
EUR 1 700 246

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36 months

continued overleaf ►



SCALIAS	NO
UNIVERSITAET PADERBORN	DE
CENTRE D'EXCELLENCE EN TECHNOLOGIES DE L'INFORMATION ET DE LA COMMUNICATION	BE
LINKOEPINGS UNIVERSITET	SE