

Topic 6

Grid and Cluster Computing: Models, Middleware and Architectures

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Grid computing is a major research area with strong involvement from both academia and the computing industry. The common vision is that Grid computing represents the culmination of truly general distributed computing across various resources in a ubiquitous, open-ended infrastructure to support a wide range of different application areas. Recently the CoreGrid (<http://www.coregrid.net>) Executive Committee reached an agreement on the following definition: a Grid is a fully distributed, dynamically reconfigurable, scalable and autonomous infrastructure to provide location independent, pervasive, reliable, secure and efficient access to a coordinated set of services encapsulating and virtualizing resources (computing power, storage, instruments, data, etc.) in order to generate knowledge?. Although significant progress has been made in the design and deployment of Grids, many challenges still remain before the goal of a user-friendly, efficient, and reliable grid can be realized. Grid research issues cover many areas of computer science to address the fundamental capabilities and services that are required in a heterogeneous environment, such as adaptability, scalability, reliability and security, and to support applications as diverse as ubiquitous local services, enterprise-scale virtual organizations, and Internet-scale distributed supercomputing.

Therefore, Grid research will greatly benefit from interactions with the many related areas of computer science, making Euro-Par 2006 an excellent venue to present results and discuss issues. This years conference will feature 7 papers, selected from 35 original submissions by using the high quality review process of Euro-Par. For this endeavor, the chairs assembled a team of 45 experts in this domain to perform a minimum of 3 reviews per paper. The selected papers represent work in the area of execution of MPI on the Grid, instant Grids and virtual private Grids, protocols for distributed shared memory, I/O support, storage services, resource brokering in Grids, as well as self-healing aspects.

We would like to cordially thank our colleagues, which helped in the review process, and we invite you to study the papers in this topic on the following pages.