

Topic 6: Grid, Cluster and Cloud Computing

(Introduction)

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Grid and cloud computing have changed the IT landscape in the way we access and manage IT infrastructures. The use of computing resources has become essential for many applications in various areas. Both technologies provide easy-to-use and on-demand access to large-scale infrastructures. The high number of submissions to "Topic 6: Grid, Cluster and Cloud Computing" reflected the importance of the research area. The papers addressed key challenges regarding design, deployment, operation and use of Grid and cloud infrastructures. Moreover, several innovative algorithms and methods for 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 were proposed. Finally, many experimental evaluations and use-cases delivered an insight into the deployment in real-world scenarios and showed interesting future application domains. Each submission was reviewed by at least four reviewers and, finally, we were able to select nine high-quality papers. The papers were grouped in four sessions that are briefly summarized in following.

The first 3 papers discuss various aspects of cloud scheduling, from application centric resource provisioning for Amazon EC2 spot instances, online-optimization of workflow activity granularity, to on-demand reserved cloud instances.

Aspects of cloud deployment and MapReduce are being discussed in the second 3 papers, particularly optimization of Pig analytics, job ordering optimization in MapReduce workloads, and content exchange for on-demand VM multi-deployments.

The last papers finally focus on energy- and carbon-efficient VM placement, and improvements in quality of service through market mechanisms and dynamically adjusting parallelism degrees in distributed parallel applications.

We would like to take the opportunity of thanking the authors who submitted a contribution, as well as the Euro-Par Organizing Committee, and the external referees with their useful comments, whose efforts have made this conference and this topic possible.