



INTRODUCTION TO THE SPECIAL ISSUE ON RECENT TOPICS IN HPC AND CLOUDS

Dear SCPE readers,

It is a pleasure to present a new special issue covering subjects in High Performance Computing and Cloud Computing. Three papers were selected for our current special issue, dealing with various aspects, including strategies for an automated negotiation environment, a methodology for migration and cloudification of legacy software, and a lightweight checkpointing strategy which is adequate to the cloud computing and the workflows characteristics.

Negotiation is an important challenge for different environments, including e-business, grid or cloud environments. Even if different requirements exist for the implementation of the negotiation process in these environments, usually agents-based systems are considered for the implementation of an automated negotiation solution. Even if the results offered by Radu and Florea in [1] are set in relation with an e-business environment, and applied for a couple of usage scenarios, they could be easily expanded for the requirements of clouds.

An interesting intra-server checkpointing strategy is considered by Meroufel and Belalem in [3]. Checkpointing is one of the fault tolerance strategies which can be also used to ensure other services, too. Important issues could be identified in relation with checkpointing and the authors targeting two of them, which are highly relevant in a cloud environment: SLA violations and the increase of system overhead. The proposed Adaptive Time based Coordinated Checkpointing (ATCCp) checkpointing mechanism offers a strong consistency together with the minimum control messages and without communication blocking issues between virtual machines.

A model-driven approach for the modernization and adaptation of legacy applications to cloud environments is considered in the last contribution from this special issue, by Menychtas *et al.* [2]. Developed in the context of the ARTIST FP7 project, the migration methodology identify three major phases, and offer an important set of added value characteristics, including the feasibility analysis in the pre-migration phase, the cloud-compliant aspects, both at SaaS and IaaS level, or the enablement of re-usability and automation.

REFERENCES

- [1] ȘERBAN RADU AND A. M. FLOREA, *Bargain strategies for agent automated negotiation in an e-business environment*, Scalable Computing: Practice and Experience, 15 (2014).
- [2] A. MENYCHTAS, K. KONSTANTELI, J. ALONSO, L. ORUE-ECHEVARRIA, J. GORRONGOITIA, G. KOUSIOURIS, C. SANTZARIDOU, H. BRUNELIERE, B. PELLENS, P. STUER, O. STRAUSS, T. SENKOVA, AND T. VARVARIGOU, *Software modernization and cloudification using the ARTIST migration methodology and framework*, Scalable Computing: Practice and Experience, 15 (2014).
- [3] B. MEROUFEL AND G. BELALEM, *Adaptive time-based coordinated checkpointing for cloud computing workflows*, Scalable Computing: Practice and Experience, 15 (2014).