CCPI 2010: Workshop on Cloud Computing Projects and Initiatives

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Foreword

Cloud computing is a recent computing paradigm for enabling convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction1. Clouds are currently used mainly in commercial settings and focus on on-demand provision of IT infrastructure. Cloud computing can play a significant role in a variety of areas including innovations, virtual worlds, ebusiness, social networks, or search engines. But currently, it is still in its early stages, with consistent experimentation to come.

The *Workshop on Cloud Computing Projects and Initiatives* (CCPI) gathered together scientists, engineers, computer users both from industry and academia to exchange and share experiences, new ideas, and research results from collaborative international and national projects and initiatives on Cloud Computing. A number of key projects funded by the European Commission and by National Government and Research Agencies, addressing several aspects of the Cloud Computing arena were presented at the workshop, and now in the following post-workshop proceeding papers.

The paper The "Cloud@Home Project: Towards a New Enhanced Computing Paradigm" describes the Cloud@Home Italian Research Ministry funded project aiming at creating a new Cloud paradigm, Cloud@Home, in which both the commercial/business and the volunteer/scientific viewpoints coexist. The Cloud@Home infrastructure has to be able to provide adequate resources to satisfy user requests also taking into account QoS requirements. The goal of the project is to design, to implement and to test on real case studies a complete middleware able to demonstrate the feasibility of the Cloud@Home vision.

The paper "Cloud-based mediation and access of healthcare data in the @neurIST project" by Martin Koehler, Siegfried Benkner, Gerhard Engelbrecht, and Steven Wood describes the utilization of Cloud technologies for the management of unrupreted aneurysms and associated research into risk factors in the @neurIST EC funded project. Diagnosis and treatment of aneurysms relies on the interpretation and integration of information, coming from the patients themselves, from the experience of clinicians, and from derived information from medical literature and other biomedical information sources. Within the @neurIST

project a data service infrastructure has been built on top of state-of-the art Grid and Cloud technologies that supports the provisioning of virtual data sources. Virtual data sources enable transparent access to and integration of distributed heterogeneous biomedical and clinical data sources. Virtual data and mediation nodes ensure an easy distribution, hosting and deployment of virtual data sources by utilizing Cloud computing technologies.

The paper "Building a Mosaic of Clouds" describes the concept behind an open-source API and platform under construction as part of the EC funded mOSAIC project that intends to use multiple Cloud offers to satisfy the deployment requirements of component-based long-running applications. It emphasizes the need of such a platform by use cases mainly related to data-intensive applications.

The paper "Cloud@Home: Performance Management Components" from R. Aversa, D. Bruneo, A. Cuomo, B. Di Martino, S. Distefano, A. Puliafito, M. Rak, S. Venticinque and U. Villano deals with the design of performance components and their integration into a coherent subsystem for the management of the SLA/QoS of Cloud@Home, a cloud environment based on voluntarily-offered resources currently under development in the context of Cloud@Home project.

The paper "A Cloud Agency for SLA Negotiation and Management" presents the architectural design of an agent based software conceived within the mOSAIC project in order to provide facilties for brokering an negotiation of Cloud resources from different providers that fulfills at the best the requirements of user's applications. The user is able to delegate to this Agency the necessary checks of the agreement fulfilment, the monitoring of resource utilization and eventually necessary re-negotiations.

The paper "Running business applications in the Cloud: a use case perspective" presents a methodology based on the EC funded RESERVOIR project's cloud infrastructure, which automates most of the work needed to migrate an application to the cloud and eases the use of the Cloud itself. As the Cloud computing paradigm is gaining wide consensus among academic and industries, the need to have infrastructures and well know procedures to ease the migration of industrial applications to such paradigm rises. Current solutions such as EC2 might need low level expertise resulting in complex and tedious procedures, which tend to delay the decision of users to use the Cloud. We present here a real use case of a complex SAP ERP 6.0 application which has been ported on the RESERVOIR Cloud infrastructure.

The paper "Minimizing technical complexities in emerging cloud computing platforms" from Andreas Menychtas, Georgios Kousiouris, Dimosthenis Kyriazis and Theodora Varvarigou, analyses the complexities of cloud platforms, which disallow their wide adoption as business and technological solutions for applications and services. It identifies and analyses the key challenges for the emerging cloud platforms in order to minimize these technical complexities and presents various innovative approaches from European research activities.

This post-workshop proceedings includes the final versions of the presented CCPI papers, taking the feedback from reviewers and workshop audience into account.

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