SeaCloud Workshop Papers
Second Workshop on Seamless Adaptive Multi-Cloud Management of Service-Based Applications

Preface

The Second Workshop on Seamless Adaptive Multi-Cloud Management of Service-Based Applications took place on September 15, 2015, in Taormina, co-located with the 4th European Conference on Service-Oriented and Cloud Computing (ESOCC). The workshop was jointly organized by the CloudWave (EC-FP7-ICT-610802) and SeaClouds (EC-FP7-ICT-610531) European FP7 projects, represented by Dr. Francesco Longo and Prof. Ernesto Pimentel, respectively.

Deploying and managing in an efficient and adaptive way complex service-based applications across multiple heterogeneous clouds is one of the problems that have emerged with the cloud revolution. The current lack of universally accepted standards supporting cloud interoperability is severely affecting the portability of cloud-based applications across different platforms.

At the same time, even at the level of a single cloud, adaptation of cloud services to their execution environment is strongly desirable in order to take appropriate actions in response to changes in the highly dynamic environment of the cloud. Adaptations can be performed at runtime (dynamic adaptation) and at development time. In the latter case, runtime and contextual data provided to business application developers can allow them to enhance their applications based on the actual operating conditions.

The objective of the workshop was to provide a forum to discuss problems, solutions, and perspectives of the ongoing research activities aimed at enabling an efficient and adaptive management of service-based applications across multiple clouds.

The Program Committee of the workshop (please see later) included 20 internationally recognized experts from ten different countries (France, Germany, Ireland, Israel, Italy, Norway, Portugal, Romania, Spain, Sweden). Seven contributions were submitted in response to the call for papers. The originality and relevance of these contributions were evaluated during a peer-review process carried out by the Program Committee, which unanimously decided to accept three of those contributions as regular papers, and one more contribution was accepted as a presentation of work in progress.

The program of the workshop edition included an opening session with a brief discussion about cloud-focused European projects and the future of ICT in Europe. One of the conclusions of this discussion, also inspired by the earlier plenary round table organized within the main conference, is that start-ups and university spin-offs represent a precious resource for future European projects providing use cases and real business scenarios.
There was also an invited talk from Lan Wang (Imperial College, London) about “Cognitive Packet Network for Self-Aware Adaptive Clouds.” The talk was indeed very interesting, focusing on the use of neural networks as a tool for intelligent and adaptive scheduling policies in cloud computing. After the talk, the four accepted papers were presented: three regular papers, and one short paper (on-going work).

The short paper, “Supporting Cloud Service Selection with a Risk-Driven Cost–Benefit Analysis,” proposed a practical and simple approach to choosing a concrete cloud service (or a set of thereof) when several alternatives are available.

The paper “Axe: A Novel Approach for Generic, Flexible, and Comprehensive Monitoring and Adaptation of Cross-Cloud Applications” introduced a novel approach to monitoring and adaptation management that is able to flexibly gather various monitoring data from virtual machines distributed across cloud providers, to dynamically aggregate the data in the cheapest possible manner, and, finally, to evaluate the processed data in order to adapt the application according to user-defined rules.

The paper “A Model-Based Approach for the Pragmatic Deployment of Service Choreographies” discussed the problem of managing multiple choreographies in multi-cloud environments and advocated that sharing-aware deployment is a more effective and resource-efficient approach.

Finally, the paper “Multi-level Adaptations in a CloudWave Infrastructure: A Telco Use Case” described the CloudWave telecommunications application use case providing a proof-of-concept on how the QoS experienced by the application users can be improved thanks to the technologies provided by CloudWave.

The workshop concluded with a final wrap-up session highlighting how adaptive management of cloud infrastructures still represents a hot and promising topic as demonstrated by the number of submission and the high quality of the accepted papers.

We would like to thank all the people who contributed to the success of the workshop: the authors of the contributed papers, the Program Committee members, and the invited speaker.

Ernesto Pimentel
Francesco Longo
Program Chairs
Organization

Program Chairs

Antonio Brogi  University of Pisa, Italy
Ernesto Pimentel  University of Malaga, Spain

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