FedCloudNet Workshop Papers
Preface of FedCloudNet 2015

Cloud federation enables cloud providers to collaborate and share their resources to create a large virtual pool of resources at multiple network locations. To support this scenario, it is necessary to research and develop techniques to federate cloud network resources, enabling the instantiation and provision of overlay networks across geographically dispersed clouds, and to derive the integrated management cloud layer that enables an efficient and secure deployment of federated cloud applications. This workshop allowed researchers to present their latest research results on federated cloud networking, including software defined networking (SDN) technology, network overlays, and traffic engineering.

In “BEACON: A Cloud Network Federation Framework,” Moreno et al. present the BEACON Framework, which will enable the provision and management of cross-site virtual networks for federated cloud infrastructures in order to support the automated deployment of applications and services across different clouds and data centers.

In “Federated Networking Services in Multiple OpenStack Clouds” Celesti et al. focus on federated cloud networking services considering multiple OpenStack clouds. In particular, they present a preliminary outcome of an innovative design of a federation management system acting as an external service provider dealing with federated networking services among multiple federated OpenStack clouds.

In “Networking Introspection and Analysis for Virtual Machine Migration in Federated Clouds,” Andronico et al. explore a way to use dynamically provided resources migrating virtual machines (VMs). In particular, they discuss some reference use cases and required tools and present a concrete implementation of an advanced monitoring agent.

In “SHYAM: A System for Autonomic Management of Virtual Clusters in Hybrid Clouds,” Loreti et al. discuss SHYAM, a software layer for the autonomic deployment and configuration of virtual clusters on a hybrid cloud. This system can be used to face the temporary (or permanent) lack of computational resources on the private cloud, allowing cloud bursting in the context of big data applications.

In “A Database-Specific Pattern for Multi-Cloud High Availability and Disaster Recovery,” Xiong et al. present an architectural pattern describing the integration of high availability and disaster recovery (HADR). This HADR pattern for database cluster replication implements both synchronous and asynchronous replication concurrently for high availability and disaster recovery purposes. In particular, the authors focus on database cluster replication between private cloud and public cloud environments.

In “An OpenStack-Based Implementation of a Volunteer Cloud,” Distefano et al. focus on the intersection between volunteering and cloud computing. In particular they propose a blueprint of a Cloud@Home implementation starting from OpenStack. The
reference, layered architecture and the preliminary implementation of a Cloud@Home framework based on OpenStack are discussed.

In “Cloud Services Composition Through Semantically Described Patterns: A Case Study,” Di Martino et al. present a methodology, based on the semantic representation of cloud patterns, cloud services, and applications, to support users in developing cloud-oriented software meeting their explicit requirements.

We wish to thank all the people who submitted papers to FedCloudNet 2015 for having shared their work with us, as well as the members of the FedCloudNet 2015 Program Committee, who made a remarkable effort in reviewing the submissions. We also thank the organizers of ESOCC 2015 for their help with the organization of the event.

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