



SeaClouds Project

D7.5.2 Collaboration Activities Report

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RE	Restricted to a group specified by the consortium (including the Commission)	
CO	Confidential, only for members of the consortium (including the Commission)	

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Executive Summary

This document reports on the specific collaboration activities SeaClouds has undertaken in the first year of the project. This document will be followed by two more reports at the end of each period, hence, in the next ones the activities will be reflected and the plan will be updated accordingly.

1. Introduction

This document provides a report of the collaboration activities undertaken in the first year of the SeaClouds project. These activities are classified according to the structure defined in the collaboration plan, Deliverable D7.5.1 [1] which was reported at month M6, and are used to compute the accomplishment of the collaboration KPIs defined in the same deliverable and extended in the current one.

The rest of the document is organized as follows: Section 2 summarizes the content of the collaboration plan D7.5.1 in terms of objectives for collaboration and KPIs. Section 3 reports on the on going and planned collaboration activities. Section 4 presents the extent to which we have fulfilled the KPIs at M12. Finally, Section 5 briefly draws some conclusions.

2. Expectations

The main goals behind the SeaClouds collaboration activities are the following:

- Use and enhance the results of previous projects, from on-going projects, e.g. MODAClouds, REMICS, Cloud4SOA, ARTIST and PaaSage.
- Draw the attention of the developer communities who can be involved in providing a feedback on the usefulness and quality of the released software, and who can be involved in long-term cooperation in case of willingness to contribute.

To achieve these goals SeaClouds has planned to undertake the following activities:

1. Participate to the EC initiated conferences, workshops, meetings, info-days related to the Cloud computing topics
2. Participate to the support actions for project dissemination initiated by the projects under same ICT objective
3. Organize scientific meetings and invite other projects to participate
4. Participate to the scientific events organized by other projects
5. Promote standards supported also by other projects
6. Produce open-source to be promoted to other projects
7. Participate in the activities under FIA working groups or other service-oriented groups

Moreover, the SeaClouds consortium plans to use the following success criteria to measure its performance:

CO1: Number of projects and initiatives in contact with: at least 3 among projects and initiatives (M18)

CO2: Number of dissemination events commonly organized: at least 2 common events (M30)

CO4: Number of software packages and concepts that are re-used in the project and coming from other projects and initiatives: at least 2 (M30)

CO5: Number of working groups to which the project members are actively participating: at least 1 (M18)

CO6: Number of promoted standards: at least 2 (M18)

CO6 has not been foreseen in the initial collaboration plan (D7.5.1) and it is being added in the report as a new KPI.

3. On-going Collaboration Actions

Close collaboration with industry

The collaboration with industry is also progressing through a close connection with the Apache Brooklyn Project initiative led by Cloudsoft. Apache Brooklyn (<https://brooklyn.incubator.apache.org>) is an open source framework for modelling, monitoring and management applications for cloud environments. Cloudsoft, a SeaClouds project partner, open sourced Apache Brooklyn in 2012. The project has entered the Apache Incubator in 2014.

SeaClouds interest and planned collaboration with Apache Brooklyn is summarized below and is extensively described in Deliverable D7.2 [2]:

- **Use:** Brooklyn deployment functionality is being used as part of the SeaClouds Deployer component within the project's architecture
- **Extension:** SeaClouds will extend Apache Brooklyn deployment functionality to PaaS. This implies direct contribution by SeaClouds developers to the Apache Brooklyn open source project via GitHub.
- **Commercial Exploitation Path:** Being a successful open source project, Brooklyn acts also as an auxiliary channel for impact, with improvements made by SeaClouds affecting commercial solutions, such as CloudSoft's AMP, derived from its base.

Participation to collaboration meetings and support actions concerning cloud computing

Collaboration activities with the other related FP7 projects are ongoing. In particular, collaboration meetings have been held with MODAClouds, Artist, and PaaSage already at the **end of September 2013**, and the project has been invited to be part of the discussion in a **FIA workshop** organized by Artist, Celar, MODAClouds, and SUCRE. This last supporting action has invited SeaClouds to write an article for the SUCRE magazine.

Moreover, on February 24-25 2014 SeaClouds participated in the **Cloudscape VI meeting** held in Brussels, Belgium. This has been an open and community friendly event providing multiple perspectives on the cloud landscape in Europe and in the world. Francesco D'Andria (ATOS) has attended this event, with the aim of promoting the SeaClouds project, focusing on standards and interoperability issues.

SeaClouds also participated in the **"European Open Cloud Collaboration Workshop"** organised by the project OCEAN (project number FP7- 318294, full name: "Open Cloud for Europe, Japan and beyond") on May, 15th 2014 in Brussels, Belgium.

15 European projects participated in the roundtable: ARTIST - Ascetic - BigFoot - Cactus - CloudScale - CloudSME - CloudingSMEs - Cumulonimbo - CloudWatch - HARNESS - MODAClouds - Orbit - PaaSage - SeaClouds - Sucre.

The core of workshop consisted of a brief presentation of each of these projects with special focus on the different paradigms of cloud application management. In particular, Michele Ciavotta (Polimi) presented the status of the SeaClouds project in terms of architecture, monitoring and SLAs management and interoperability standards.

Finally, SeaClouds participated in the **"Software Services & Cloud Computing Concertation Meeting"** organised by CloudWatch on 10-11 Sept 2014 in Brussels, Belgium. In particular, Antonio Brogi (UPI) presented the status of the SeaClouds project and participated in the workshop on identifying topics for the ICT Work Programme 2016-2017.

Organization of scientific meetings involving other projects

The SeaClouds project organized a scientific workshop (SeaClouds workshop 2014) on September 2nd in Manchester, UK, which was held in conjunction with ESOC 2014. The objective of the workshop was to provide a forum to discuss problems, solutions and perspectives of ongoing research activities aimed at enabling an efficient and adaptive management of service-based applications across multiple clouds. The program included four presentations of contributed papers, a shared opening keynote on "From TOSCA landscapes to the Foundry - A walkthrough", an invited talk on "Going to CAMP via Apache Brooklyn", and a round table on multi-cloud interoperability. The workshop also included a session devoted to presentations of ongoing EU projects, which included a presentation of the CoherentPaaS project (by Ricardo Jiménez, Tech. Univ. of Madrid), of the Panacea project (by E. Gelenbe and G. Gorbil, Imperial College), of the PaaSage project (by A. Rossini, SINTEF), of the MODAClouds project (by G. Casale, Imperial College), of the ARTIST project (by C. Pezuela, ATOS), of the Eco2Cloud project (by U. Wajid, Univ. of Manchester), and of the ASCETIC Project (by K. Djemame, Univ. of Leeds).

Participation to scientific events organized by other projects

SeaClouds participated in the session on multi-clouds organized by the MODAClouds project at the 4th International Conference on Cloud Computing and Services Science - CLOSER 2014 that was held on 3- 5 April, 2014 in Barcelona, Spain. In particular, Antonio Brogi (UPI) presented the paper “EU Project SeaClouds: Adaptive Management of Service-Based Applications Across Multiple Clouds”, which was then published in the official proceedings of the CLOSER 2014 conference.

Promotion of standards supported also by other projects

The consortium is creating close contacts with TOSCA and CAMP standards and developing its architecture based on the current discussion in these two groups.

Topology and Orchestration Specification for Cloud Applications (TOSCA): the main aim of TOSCA standard is to improve the portability of cloud applications and services across multiple clouds. In the context of the SeaClouds project, TOSCA will be used to provide an interoperable description of cloud applications and the services they use, the relationships between these services as well as their operational behavior. This description is independent of the supplier that creates the service or the application, and it is cloud provider agnostic.

The benefits resulting from this approach are significant: the portable application description enables portable deployment to any compliant cloud, as well as dynamic, multi-cloud application deployment. In addition, existing applications can benefit of smoother migration from a cloud provider to another.

By exploiting the TOSCA specification to drive the design of the model for describing cloud services, the SeaClouds project aims at actively promote the standardization effort of TOSCA, by contributing review proposals that will emerge while trying to devise TOSCA-compliant instances of the SeaClouds service orchestration model.

On the other hand, SeaClouds will also focus on developing functionalities that are currently not supported by TOSCA to solve the issues about policies for the dynamic management of service orchestrations.

Cloud Application Management for Platforms (CAMP): the main goal of CAMP is to define the artefacts (model) and APIs that should be offered by a PaaS to manage the building, running, administration, monitoring and patching of applications in the cloud. CAMP is actually working on the second version of a PaaS Management API Specification that will be submitted to OASIS to become an industry standard. The TWG is supported by Oracle, Cloudsoft, Red Hat, Rackspace, Huawei, and Software AG. Some SeaClouds members are successfully and actively participating in OASIS technical working groups, mainly as co-chairs and document editors/authors. Alex Heneveld and Duncan Johnston-Watt belonging to partner Cloudsoft are editors/authors of the Cloud of the Application Management for Platforms (CAMP) specification (http://cloudspecs.org/CAMP/CAMP_v1-0.pdf).

The CAMP specification has technical and business motivations that are in line with SeaClouds ones: (i) the need of a generic application and platform management API that is language, framework and platform neutral, and (ii) the need of increasing the portability of applications between PaaS offerings, thus alleviating vendor lock-in and creating a more dynamic PaaS segment.

SeaClouds can provide valuable feedback and contribute to the CAMP specification. The standardization strategy that will be followed for CAMP is to (i) implement a CAMP compliant interface to talk to PaaS providers, (ii) provide feedback to CAMP by proposing new functionality/resources to be added to working version of the specification, and (iii) contribute to the specification based on the research conducted within SeaClouds.

Production of open-source software to be promoted to other projects

SeaClouds is an open-source project. Development is strongly based on the usage of github as main repository and tool for software development and for collaboration <https://github.com/SeaCloudsEU>. In this phase of development, the part that is being actively developed is the runtime as part of the Brooklyn incubator project. The participation in Brooklyn allows us to have a strong connection with the development community already in place around this project, as well as with the CAMP initiative of which Brooklyn represents an implementation. In the next period, also the other SeaClouds repositories will be populated while the corresponding software will be developed.

Participation in the activities under FIA working groups or other service-oriented groups

IFIP working group on services: UMA, UPI and Polimi are participating in the IFIP working group on services <http://home.deib.polimi.it/baresi/ifip/>. This working group has been established in 2010. Its goal is “to organize and promote the exchange of information on fundamental as well as practical aspects of service-oriented systems. In doing so, the working group will consider service-oriented systems from a technological perspective, but it will also address their business aspects and economic impact. The aim also is to structure a research community that comprises both academia and industry (maybe through living labs) and become an active, permanent, and international forum on services-oriented systems.”

International Subcommittee SC38 “Distributed Application Platforms and Services (DAPS)”: UMA participates in the International Subcommittee SC38 DAPS, related to Web services, Service-Oriented Architecture, and Cloud Computing standardization issues, that belongs to the International Committee ISO/IEC/ JTC1 “Information and Communication Technology”, with ANSI in the activity field: “Standardization for interoperable Distributed Application Platform and services”.

4. Fulfilment of KPIs

The table below summarizes the current fulfilment of the KPI set in D7.5.1. We are fulfilling all of them with the exception of the number of commonly organized events.

In the second project year we will focus more on this aspects seeking collaboration with the other projects we are already in contact with.

KPI	Target value	Current value
CO1: Number of projects and initiatives in contact with	3 (M18)	5
CO2: Number of dissemination events commonly organized	2 (M30)	1 (the SeaClouds workshop has been an initiative of the SeaClouds project. However, it has seen the active participation of various other projects. As such, it fulfils the KPI at least partially)
CO4: Number of software packages and concepts that are re-used in the project and coming from other projects and initiatives	2 (M30)	2 (Cloud4SOA adapters, Brooklyn)
CO5: Number of working group to which the project members are actively participating	1 (M18)	2
CO6: Number of promoted standards	2 (M18)	2

5. Conclusion

This deliverable summarizes the collaboration activities that have been undertaken by the SeaClouds project. Overall, the project is properly interacting with the other initiatives in the area both at the level of other European projects and at the level of international standardization initiatives. Moreover, it is on a good track with respect to the KPIs defined as part of the collaboration plan.

6. Reference Documents

- [1]. D7.5.1 "Collaboration Plan" M6 Deliverable, March 2014.
- [2]. D7.2 "Initial Exploitation Plan", M12 Deliverable, September 2014.