CloudSocket

FIRST YEAR DISSEMINATION COLLECTION
D7.3

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www.cloudsocket.eu

CloudSocket

EXECUTIVE SUMMARY

The present deliverable reports on the Dissemination Activities of the CloudSocket consortium for the first year. The introductory section provides an overview of the activities and presents the dissemination strategy adopted since the beginning of the endeavour. Section 2, being the main section of the deliverable, highlights all the dissemination activities conducted which include the organization of tutorials and workshop, the participation in networking, clustering and cooperation events as well as the publishing of early research results. This section also presents educational activities, the project flyer and website as well as instances of presence in social media.

The project participants have already embarked on dissemination actions for the second year. The current plans and ongoing activities are listed in Section 3. The list is tentative in the sense that new initiatives will be discussed in the forthcoming partner meetings. The deliverable concludes with a short summary.

PROJECT CONTEXT

Workpackage	WP7: Dissemination, Collaboration and Standards
Task	T7.1: Dissemination
Dependencies	N.A.

Contributors and Reviewers

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1 INTRODUCTION

Work package (WP) 7 creates, collects and manages the communication, dissemination, and cooperation activities of the project. It also identifies possibilities for contribution to standards. All partners participate in WP7 which spans the duration of the whole project.

The present document is the 1st-year deliverable of Task 7.1: Dissemination. This task (a) develops the strategy for the communication activities on CloudSocket target groups and for the dissemination to appropriate scientific and business fora, (b) manages the dissemination activities that are performed within the corresponding WPs, (c) collects the results to dissemination packages and (d) monitors the dissemination activities.

This deliverable is restricted to the reporting of dissemination and communication activities that have taken place within the first year of the project. Collaboration activities are described in Deliverable D7.4 that is also submitted at the end of year 1 of the project.

WP7 successfully started both with in terms of dissemination and communication activities and in terms of collaboration with other projects. Concerning publications, a good number of papers have already been submitted out of which particular publications have been achieved in certain conferences and workshops. Other dissemination activities include the organisation of a workshop in conjunction with ES2015, the contribution of a networking session at the ICT 2015 event in Lisbon and the presentation of one tutorial at UCC 2015.

Thanks to the CloudWatch network, the concertation day and the Multi-Cloud Cluster of the EC, CloudSocket has been rapidly involved in interesting collaborations. Another reason for this quick initiation of collaborations is the tight correlation of CloudSocket partners with other cloud computing projects and especially with the FP7 project PaaSage. The respective collaboration events also provided an opportunity to disseminate early results of CloudSocket to the consortia of the projects represented.

The project website (https://www.cloudsocket.eu/) provides the project front-end and constitutes an entry-point towards the community. It is maintained up-to-date, providing an overview of the project as well as relevant material, such as the project flyer, public deliverables, publications, and training material. Moreover, it presents the architecture and the use cases, and provides entry points matching the different dissemination and communication targets of the project.

The document is organized as follows. The following sub-section presents the dissemination strategy that has been defined since the beginning of the project. Section 2 presents the dissemination activities on which the members of the consortium have embarked, whereas Section 3 presents the dissemination plan for year 2. It has to be noted that dissemination activities are discussed thoroughly in every partner meeting so as to ensure that joint and individual dissemination activities are well concerted. The deliverable concludes with a summary and discussion of the dissemination and communication activities.

1.1 Dissemination Strategy

The project's dissemination strategy was defined at the kick-off meeting that took place in Vienna, in January 2015. The consortium partners identified a number of scientific / technological domains as targets for individual and joint dissemination activities. These comprise (but are not limited to) the following: Cloud Computing, Service-Oriented Computing, Business Process Management, Knowledge Management, Semantics-based Systems, Information Systems. Apart from the publication to scientific fora, the dissemination strategy includes the organization of workshops, participation in project cluster events and the delivery of tutorials and lectures in relevant scientific or industrial events. The broader dissemination and communication targets also comprise public bodies, SMEs and professional associations. More details about the specific dissemination and communication activities of the project are provided in section 2 of the present document.

The project adheres to an Open Access Policy and commits to making publishable results available through the Zenodo Open Access Repository (http://zenodo.org) and the OpenAIRE EU project platform (https://www.openaire.eu/)[1]. Guidelines have been communicated to the partners. The project has also opted in for Open Access on research data which in the case of CloudSocket comprise business process models and workflows.

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[1] At the time of submission of the present deliverable, the Zenodo repository is undergoing an upgrade and is not fully functional. Specifically, the projects are not recognizable by contract number as is the case in OpenAire and are not directly linkable to the documents. According to the operators of Zenodo, this functionality will be added in the new release.

2 DISSEMINATION ACTIVITIES

Within WP7, the primary aims set at the kick-off meeting were to: (a) establish the main communication infrastructure, (b) produce project description information, (c) plan early dissemination activities related to the integration of partner background brought into the project and initial design decisions, (d) identify cross-fertilization opportunities with ongoing projects in the area of Cloud Computing and plan collaboration events and (e) identify relevant standardization bodies and initiatives.

All project participants contributed material for the project folder and the CloudSocket website that is implemented on the Liferay portal. FORTH and BOC jointly manage the project website which is maintained up-to-date, providing general information on the project and its goals, information on the participants, public deliverables, and material related to the use cases, as well as a wiki for collaboration purposes. Web site hosting and maintenance is performed in a collaborative manner between BOC and FORTH.

Initial dissemination, communication and cooperation efforts have culminated in the production of a project flyer, the publication of papers, presentations in project cluster events and the organization of tutorials and workshops as presented in the following subsections.

2.1 The CloudSocket Flyer

The project flyer (included in Annex A of the present deliverable) was produced in the very first period of the project and is available on the CloudSocket website. The flyer provides a concise view of the project's goals, the challenges addressed, the use cases and the initial conceptualization of the approach and technological solution.

2.2 Publications

The following articles have been published in the first year of the project. They are listed in chronological order along with a short description and abstract.

– Closer2015: Y. Liang, "*OCCI and TTCN-3: towards a standardized Cloud quality assessment framework*", Lisbon, Portugal, May, 2015 (partner: BWCON, URI: https://zenodo.org/record/35587)

Description: This paper presents an approach of a testing framework based on the standard ETSI testing language TTCN-3 for OGF OCCI-controlled Cloud infrastructure

Abstract: Impacting basically all types of IT infrastructures, the Cloud is one of the most important evolving IT paradigms. A standard-based Cloud quality and compliance assessment framework will be therefore of utmost importance. Bringing together the Open Cloud Computing Interface (OCCI), the ETSI standardized test specification language TTCN-3 and related test methodologies this paper is going to demonstrate

initial steps towards such a framework. Taking into account the diversity of Cloud infrastructures, of service providers, and related architectural, harmonization and standardization effort this approach is mainly motivated by studying Cloud-related effort of the NIST Cloud Computing Program and the ETSI Cloud Standards Coordination (CSC). Reflecting the "Cloudiness" of the Software Defined Network (SDN) and ETSI Network Functions Virtualization (NFV) this paper is considering these initiatives as necessary elements of the scope of every future standardized Cloud quality assessment framework as well.

– ICE 2015: M. König, G. Baltes, B. Katzy: "*On the role of value-network strength as an indicator of technology-based venture's survival and growth*" , Belfast, Northern Ireland, June 2015 (partner: BWCON, URI: https://zenodo.org/record/35585)

Description: This paper proposes an approach for supporting innovation intermediaries in analyzing business plans in early-stage for technology-based ventures, identifying their strengths and weaknesses in transaction relations so as to derive actionable insights for prioritizing their support.

Abstract: Technology-based ventures provide an important route for successful technology transfer. Their founders are supported in successful technology commercialization by innovation intermediaries. Accordingly, the performance of an innovation system, at least to some extent, depends on the efficiency of these intermediaries in terms of the impact of their scarce resources on the survival and growth of technology-based ventures. To increase their efficiency, intermediaries typically optimize their "intake" by requesting a formal business plan to base their selection on as a hygiene factor. Thus, some scholars argue that written business plans show significant distortion as being produced only to attract support from innovation intermediaries. Accordingly, they rarely serve for these addressees as a source of information for analyzing the strengths and weaknesses of ventures, in order to derive actionable conclusions and more effectively support ventures. Addressees search for different indicators in business plans for their evaluation. The descriptions of these indicators only evince little empirical proof for the performance of technology-based venture's. This gap is herein addressed, in contrast to the lacking empirical insight, as the most frequently produced artifact of early-stage technology ventures is at the same time a written business plan. This paper addresses this gap by conceptualizing transaction relations described in the written business plan as a means for working around the inevitable inaccuracies and uncertainties that delimit the explanatory abilities of the snapshot model presented by a business plan. Using a qualitative content analysis, we derive from the descriptions of transaction relations in a written business plan valid indicators for the maturity of the venture's value-network in different dimensions. To this extent, this paper presents the findings from a pre-study that was conducted based on a sample of forty business plans from an overall population of 800 business plans in a longitudinal sample from one of Europe's most active innovation systems, the regional State of Baden-Württemberg. Such findings may be used by innovation intermediaries to enhance their efficiency; by enabling these to not only derive individual support strategies for business acceleration but also to analyze the impact of support measures by reliably monitoring maturity progress in venture activities.

– IEEE Cloud 2015: Kritikos, K. and Plexousakis, D. *"Multi-Cloud Application Design through Cloud Service Composition"*, New York, USA, July 2015 (partner: FORTH, URI: https://zenodo.org/record/35578)

Description: The paper proposes a novel cloud service composition approach able to optimally compose different types of cloud services (IaaS, SaaS) by simultaneously satisfying various types of user requirements, including quality, deployment, security, placement and cost requirements. It is also able to consider design choices in terms of whether internal software components or external SaaSs can be used to realise certain application/business process tasks. This approach addresses research challenges related to the allocation phase of a BPaaS especially with respect to the selection of SaaS and IaaS services able to realise the functionality of BPaaS workflow tasks and the deployment of internal BPaaS software components, respectively. Relevant WPs: 3, 4.

Abstract: While various platforms are offering facilities for single-cloud application design, deployment and provisioning, there is a need to move to multiple clouds in order to achieve cost-effectiveness and avoid vendor lock-in. Apart from not supporting multi-cloud application management, many platforms usually focus on the deployment and provisioning phases of the cloud-based application lifecycle by neglecting the design phase. However, the design selection of the best possible cloud service composition affects the provisioning phase, as the more distant from optimality is the selected solution, the more adaptation actions will be enacted. To this end, there is a high need for cloud application design tools and methods which can select the best possible cloud service composition based on user requirements. This paper satisfies this need by proposing a cloud service composition approach able to optimally compose different types of cloud services by simultaneously satisfying various types of user requirements. These types, not concurrently supported by any cloud application design tool, include quality, deployment, security, placement and cost requirements. Moreover, the proposed approach addresses a particular design choice type not currently considered in literature.

– SeaWave / ESOCC 2015: J. Domaschka, D. Seybold, F. Griesinger, D. Baur, "*Axe: a Novel Approach for Generic, Flexible and Comprehensive Monitoring and Adaptation of Cross-Cloud Applications*", Taormina, Italy, August 2015 (partner: UULM, URI: https://zenodo.org/record/35580)

Description: This paper presents the first outcome of the cross-cloud aware monitoring infrastructure which is part of the Cloudiator framework. Relevant WPs: 3, 4.

Abstract: The vendor lock-in has been a major problem since cloud computing has evolved as on the one hand side hinders a quick transition between cloud providers and at the other hand side hinders an application deployment over various clouds at the same time (cross-cloud deployment). While the rise of cross-cloud deployment tools has to some extend limited the impact of vendor lock-in and given more freedom to operators, the fact that applications now are spread out over more than one cloud platform tremendously complicates matters: Either the operator has to interact with the interfaces of various cloud providers or he has to apply custom management tools. This is particularly true when it comes to the task of auto-scaling an application and adapting it to load changes. This paper introduces 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.

− Cloud Forward 2015: J. Domaschka, F. Griesinger, D. Baur, A. Rossini, "*Beyond Mere Application Structure Thoughts on the Future of Cloud Orchestration Tools*", Pisa, Italy, October 2015 (partner: UULM, URI: https://zenodo.org/record/35685)

Description: This paper presents novel approaches to optimize resource utilization in the context of cross-cloud orchestration. Relevant WPs: 3, 4.

Abstract: Managing cloud applications running on IaaS is complicated and error prone. This is why DevOps tools and application description languages have been emerging. While these tools and languages enable the user to define the application and communication structure based on application components, they lack the possibility to define sophisticated communication patterns including the wiring on instance level. This paper details these shortcomings and presents approaches to overcome them. In particular, they we propose (i) adding boundaries to wiring specifications and (ii) introducing a higher-level abstraction—called facet—on top of the application. The combination of both concepts allows specifying wiring on basis of logical units and their relations. Hence, the concepts overcome general wiring problems that currently exist in cloud orchestration tools. In addition to that, the introduction of facets improves the re-use of components across different applications.

− I3E 2015: R. Woitsch, W. Utz, "*BPaaS : Model-based Business and IT Cloud Alignment as Cloud Offering*", Delft, Netherlands, October 2015 (partner: BOC, URI: https://zenodo.org/record/35579)

Description: This paper is a project introduction by focusing of the first outcome of the use cases and introducing the idea of BPaaS.

Abstract: Cloud computing proved to offer flexible IT solutions. Although large enterprises may benefit from this technology by educating their IT departments, SMEs are dramatically falling behind in cloud usage and hence lose the ability to efficiently adapt their IT to their business needs. This paper introduces the project idea of the H2020 project CloudSocket, by elaborating the idea of Business Processes as a Service, where concept models and semantics are applied to align business processes with Cloud deployed workflows. Four architectural building blocks proposed for (i) design, (ii) allocation, (iii) execution and (iv) evaluation are discussed before providing and outlook.

− ES 2015: R. Woitsch, W. Utz, "*BPaaS : Model-based Business and IT Cloud Alignment as Cloud Offering*", Basel, Switzerland, October 2015 (partner: BOC, URI: https://zenodo.org/record/35579)

Description: This paper is a project introduction by focusing of the first outcome of the modelling language that is use to map domain-specific business processes with workflows in the cloud.

Abstract: Cloud computing proved to offer flexible IT solutions. Although large enterprises may benefit from this technology, SMEs are falling behind in cloud usage due to missing

IT-competence and hence lose the ability to efficiently adapt their IT to their business needs. This paper introduces the project idea of the H2020 project CloudSocket, by elaborating the idea of Business Processes as a Service (BPaaS), where concept models and semantics are applied to align business processes with Cloud deployed workflows. Four architectural building blocks are proposed for (i) design, (ii) allocation, (iii) execution and (iv) evaluation are discussed before providing and outlook.

– UCAAT2015: Y.Liang, "*An ETSI TTCN-3 testing framework for OGF OCCI-controlled Cloud ecosystems*", Sophia Antipolis, France, October 2015 (partner: BWCON, URI: https://zenodo.org/record/35587)

Description: This is a Poster on the ETSI User Conference on Advanced Automated Testing. It proposes an approach using the standard testing language TTCN-3 for Network Functions Virtualization (NFV) and the German "Industrie 4.0".

Abstract: Since the impact of Cloud-based virtualization has become increasingly visible e.g. in the telecom and industrial domain through efforts such as ETSI Network Functions Virtualization (NFV) and the German "Industrie 4.0". Critically relying on Cloud services both domains have strong requirements concerning the assessment of the related Cloud service quality. At the same time the Cloud management API OCCI and the ETSI test specification languageTTCN-3 have experienced a healthy and strong evolution within their respective standardization bodies and incumbent and new application fields. Pursuing the basic idea "TTCN-3 over OCCI", this presentation is going to give a synopsis of this development specifically in ETSI MTS, NFV, CSC and NIST and related European projects in context. The argumentation "towards a TTCN-3/OCCI-based Cloud Quality Assessment Framework" will be further supported by discussion of our technical work such as the completion of the ETSI CSC OCCI conformance tests suite against the EGI (European Grid Initiative) OCCI-Cloud realization and a discussion and test of a Cloud Elasticity scenario in a large European multi-Cloud testbed.

– E-Challenges 2015: R. Woitsch, W. Utz, "*BPaaS : a Model-Based Approach to Align Business with Cloud Offerings*", Vilnius, Lithuania, November 2015 (partner: BOC, URI: https://zenodo.org/record/35583)

Description: This paper is a project introduction by focusing of the first outcome of the high level architecture to support the CloudSocket Broker.

Abstract: Cloud computing proved to offer flexible IT solutions. Although large enterprises may benefit from this technology by educating their IT departments, SMEs are dramatically falling behind in cloud usage and hence lose the ability to efficiently adapt their IT to their business needs. This paper introduces the project idea of the H2020 project CloudSocket, by elaborating the idea of Business Processes as a Service (BPaaS), where concept models and semantics are applied to align business processes with Cloud deployed workflows. The hybrid usage of conceptual and semantic models introduce smart knowledge processing mechanisms to bridge the semantic gap from business requests to deployable workflow bundle.

– UCC 2015: D. Baur, D. Seybold, F. Griesinger, A. Tsitsipas, C. B. Hauser, J. Domaschka, " *Cloud Orchestration Features: Are Tools Fit for Purpose?*", Limassol, Cyprus, December 2015 (partner: UULM, URI: https://zenodo.org/record/35582)

Description: This paper derives features which have to be fulfilled by a sophisticated Cloud orchestration tool and compares available tools with these features. Relevant WPs: 4.

Abstract: Even though the cloud era has begun almost one decade ago, many problems of the first hour are still around. Vendor lock-in and poor tool support hinder users from taking full advantage of main cloud features: dynamic and scale. This has given rise to tools that target the seamless management and orchestration of cloud applications. All these tools promise similar capabilities and are barely distinguishable what makes it hard to select the right tool. In this paper, we objectively investigate required and desired features of such tools and give a definition of them. We then select three open-source tools (Brooklyn, Cloudify, Stratos) and compare them according to the features they support using our experience gained from deploying and operating a standard three-tier application. This exercise leads to a fine grained feature list that enables the comparison of such tools based on objective criteria as well as a rating of three popular cloud orchestration tools. In addition, it leads to the insight that the tools are on the right track, but that further development and particularly research is necessary to satisfy all demands.

2.3 Workshops / Tutorial / Networking Events / Cluster Events

– *Workshop "Business Processes in the Cloud" @ ES 2015*

A workshop about "Business Processes in the Cloud" has been announced at the Third International Conference on Enterprise Systems ES2015 on 14/15 October 2015 in Basel, Switzerland. There were several submissions about cloud computing and it was decided to integrate the presentations into the main program.

In a project session there was a presentation about "CloudSocket - Business and IT Alignment using a Smart Socket", in which the project goals and the BPaaS approach of CloudSocket have been presented. There were further presentations of CloudSocket partners BOC and FHNW in the main program.

– *Tutorials*

- Tutorial *"Business Process as a Service (BPaaS): a Model-Based Approach for Smart Business and IT-Cloud Alignment*" @ UCC 2015, participants: UULM, BOC

   A focused tutorial on BPaaS using a model-based approach has taken place at the beginning of December. Beside the overall project idea and the use of the model-based approach, the current prototypes and results were used as training material.

- *"ADOxx Metamodeling Tutorial*" @ I3E 2015, participants: BOC

   In conjunction with the BPaaS paper there was a tutorial with 9 participants on the modelling platform that is used to realize BPaaS. Results from CloudSocket have been distributed vie the CloudSocket Development Space on ADOxx.org

- *"ADOxx Metamodeling Tutorial*" @ ES 2015, participants: BOC

In conjunction with the BPaaS paper there was a tutorial with 7 participants on the modelling platform that is used to realize BPaaS. Results from CloudSocket have been distributed via the CloudSocket Development Space on ADOxx.org

– *Networking Event @ ICT 2015*

ICT 2015 took place from 20 to 22 October in Lisbon, Portugal. The event, which is the biggest H2020 event organized by the EU Commission brought together more than 6000 visitors (academics, industry representatives, NGOs). CloudSocket participated a dedicated networking session for SMEs in the cloud and represented the position of SMEs as users of the cloud, instead of SMEs as providers of new cloud offerings. Participants: BOC, UULM, YMENS

During the meetings with the conference participants, Teamnet Group, as owner of the Ymens brand, has disseminated information about its current R&D projects, including CloudSocket. Emphasis was placed on the project results and Ymens' role in achieving them as part of the project consortium.

– *Cluster Events and Collaboration with Third Parties*

- CloudSocket is involved in the Inter-Cloud Cluster. To this end, it participates in telcos being held while it was present in the Inter-Cloud Cluster meeting that was held in parallel to the Cloud Forward conference (October, 2015). The purpose of this meeting was to organise the work and take decisions on various initiatives that are planned to take place. As a result, particular technical working groups have been formed in which CloudSocket is involved while there is a plan for developing a position paper detailing the current research roadmap.

- Topic: "Cloud Identity Crisis and the Identity Broker" presented by Vlad Minhea (YMENS) at DevTalks 2015 in Bucharest revealed the actual crisis in identity management as well as a solution perspective. DevTalks 2015 is a leading IT Conference designed to drive technology transformation with 400 developers and IT professionals having at the center of it all a powerful local and international content about mobile, web, cloud and big data. Identification and authentication in and across clouds play a pivotal role in regulating reliable and secure access to such services. Several models have emerged to support identity and access management across heterogeneous cloud environments. CloudSocket could benefit from one such model – the Identity Broker – as a practical method of securing the cloud.

- Internet & Mobile World 2015, Romanian IT & business conference: Presentation of CloudSocket technological challenges at Ymens booth, describing our main issues regarding the role of the marketplace and how we plan on preparing for testing the brockerage environment within the BPaaS Implementation.

- Microsoft Summit 2015, Romanian IT & business conference: Presentation of CloudSocket technological challenges and learnings at Ymens booth, describing our main issues regarding the role of the marketplace and how we plan to test and integrate the brokerage environment within the BPaaS prototype

implementation. The presentation also included information about some ideas for the implementation of the user site.

- FHOSTER has informed some of its customers (among the smaller ones) about the CloudSocket project, and has checked their potential interest in purchasing a CloudSocket BPaaS Bundle. No real business case has emerged yet, but the concept of BPaaS has been understood and appreciated. FHOSTER has also presented the CloudSocket project to the director of the Luiss EnLabs, one of the main start-up accelerator / incubator in Rome, currently hosting about 40 start-ups. The director of Enlabs may participate in the next project meeting in Rome and provide a very valuable feedback on how CloudSocket might fit the needs of their start-ups.

- UULM (represented by Stefan Wesner and Jörg Domaschka) participated in a consultation with NEC including the NEC Development, Senior Management, and Executive people from the HPC, cloud, and networks department on (08.09.2015). There, the concepts and ideas behind CloudSocket and expectations towards future cloud computing hardware including servers, and networking features were presented. Concerns raised by UULM representatives were taken seriously and further discussion was promised (rest of discussion is under a NDA).

- In their meeting with researchers and operation staff at Osaka CyberMediaCentre on 09.09.2015, UULM representatives, Stefan Wesner and Jörg Domaschaka, presented the concepts and ideas behind CloudSocket and the current status of the project. The Japanese and UULM groups exchanged their experience regarding the operation of a cloud data centre with respect to non-functional aspects, such as fault tolerance. An unofficial cooperation was agreed upon in order to profit from the experience exchanged.

- Mathema has organized several F2F meeting within the Tuscany ICT-Robotics cluster with several potential interested SMEs. Those meetings concerned the presentation of the CloudSocket concept and the collection of an early feedback on the willingness to pay for BPaaS. Moreover, during such meetings, business and process requirements have been identified to produce the business scenarios presented in Deliverable D2.1. Finally, the Tuscany ICT-Robotics cluster supporting office, agreed to make available a list of 600-700 member's contacts to disseminate the CouldSocket information. This contact list will be integrated to the current customer list of the company. An informative mail is going to be produced by the end of the year (2015) and will be attached with the annual Mathema Christmas greetings (>500 contacts).

2.4 Educational Activities

UULM presented CloudSocket and the problem of business and IT-alignment in the scope of several lectures throughout the year as detailed below. In addition to that, acquisition of students for CloudSocket-oriented bachelor and master thesis has started.

- Stefan Wesner, "Storage and Data Center Networks", Lecture for Master Students, University of Ulm, Summer Term 2015

- Stefan Wesner/Lutz Schubert: "Cross-organisational distributed systems and clouds", Lecture for Bachelor and Master students, University of Ulm, Summer Term 2015.
- Stefan Wesner, Jörg Domaschka: "Computer Networks", Lecture for Bachelor and Master students, University of Ulm, Winter Term 2014.

Stefan Wesner, "Research and Teaching at OMI", Presentation for Master Students, University of Ulm, February 2015

Prof. Dimitris Plexousakis (FORTH) and Dr. Kyriakos Kritikos (FORTH) jointly taught the postgraduate-level course CS565 entitled "Business Process and Workflow Management Systems" at the Department of Computer Science, University of Crete in the Spring semester of 2015. The course will be taught again by the same instructors in the Spring semester of 2016. The course covers a range of topics from Business Process Design, Specification, Management, to Process Models for Workflow Management Systems. It also covers current topics in Service-Oriented Computing including service description, specification, discovery, matchmaking, composition, orchestration as well as infrastructures including Cloud-based Systems. The 2016 edition will also include material based on the CloudSocket design and execution environments. The course is attended by MSc and PhD Students along with a small number of 4-th year BSc students. Students perform business process design assignments based on the Adonis platform (offered by BOC), as well as submit reports on a bibliographic review of current research topics which is subsequently presented in class. Three MSc students are currently working on topics related to the design and execution / monitoring environments of CloudSocket.

Prof. Stella Gatziu (FHNW) taught the course "IT Management and Cloud Computing" in the Master of Science in Business Information Systems at FHNW and also taught in the certificate course for practitioners "CAS Cloud Computing". There are two students who started with a Master's thesis on topics from CloudSocket.

2.5 The CloudSocket Website

The CloudSocket website (Figure 1) has been created using the Liferay Portal (http://www.liferay.com/), a free and open-source portal that provides a robust platform and a user-friendly interface for building websites. This website provides all the necessary information about the project, such as project activities and progress, news and announcements, deliverables, publications, training material, flyer, as well as software prototypes and tools that are or can be used to realise the CloudSocket prototype. It comprises both a public space for the community at large and a private area for collaboration among project participants.

The public area contains the following sections:
1. The Home (Welcome) page provides an overview of the project and the main entry points for interacting with the project targeting different actors and stakeholders.
2. The Project page provides the basic idea and the vision of the project, its main architecture, as well as its main use case scenarios. Furthermore, it makes the project's flyer available for download and presents the CloudSocket consortium.
3. The Documents page contains related publications achieved by the project partners, the deliverables produced so far and the training material that have been delivered.
4. The Download section makes available a list of tools and research prototypes that are or can be utilized to realise the project's architecture.

5. The Events section contains all past and upcoming events (e.g. participation in conferences, workshops, tutorials, etc.) in which CloudSocket partners have or will participate, respectively.
6. The FAQ page gives answers to a list of questions regarding the project and its objectives.
7. The Contact section provides contact information.

Using the members' Login, it is possible to enter the private area of the website (Figure 2), accessible only to the project partners. This intranet is used for the internal communication and for collaborative work.

Figure 1: Homepage of the CloudSocket website
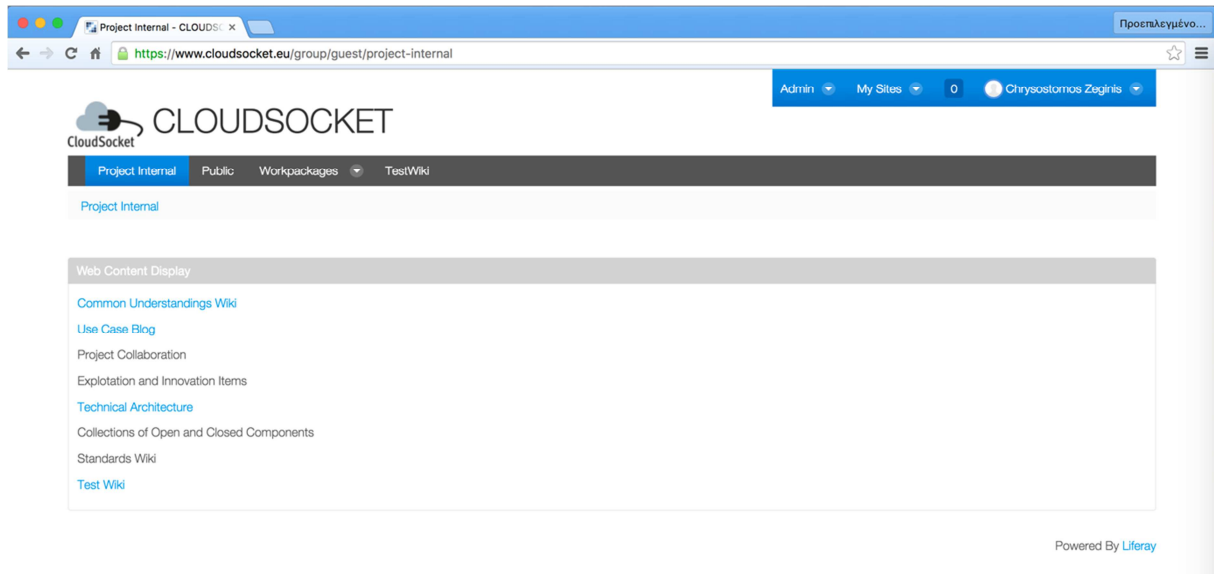
Figure 2: Private area of CloudSocket website

TheCloudSocket website also contains the public Technology and Terminology Wiki. It establishes a common technical understanding of the project terminology in general and Business Process as a Service (BPaaS) in particular. In order to achieve this goal, a consortium-wide research and review in the literature and based on the partners experience has been executed.

The terms identified throughout this are to be used for communication within the project consortium as well as for external communication. As they facilitate the common understanding among all project participants, they are also applied in the various project discussions to avoid any misconceptions and keep these discussions stringent by allowing to focus on the content. Also, a common terminology keeps the project deliverables consistent and allows a better structuring and a better pursuing of the main research objectives to be followed in the context of this project and beyond. It is also a starting point for possible cooperative projects or third party members to get a deeper knowledge of the applied principals and approaches.
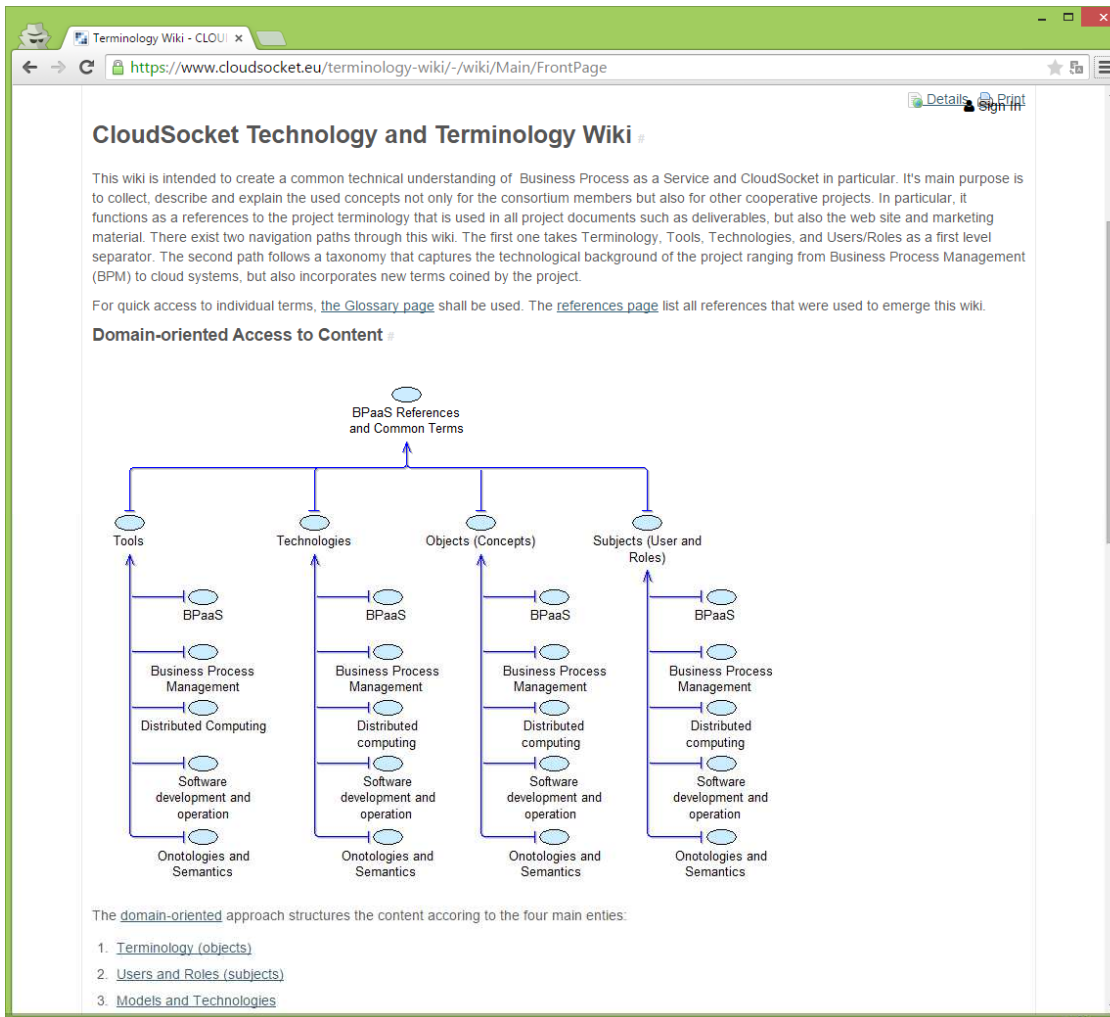
Figure 3: Frontpage of the Wiki

2.6 CloudSocket in Social Media

CloudSocket started beginning of May 2015 with its Twitter account. Tweets are distinguished in community building and awareness tweets as well as content communication tweets.

Community awareness tweets address pictures of meetings, events or lighter, entertaining statements, whereas content communication tweets state the term "BPaaS – Business Process as a Service" and content-related issues such as the architecture.

With about 30 followers the account is starting but wants to stay with a balance of "entertaining" and "content" tweets.
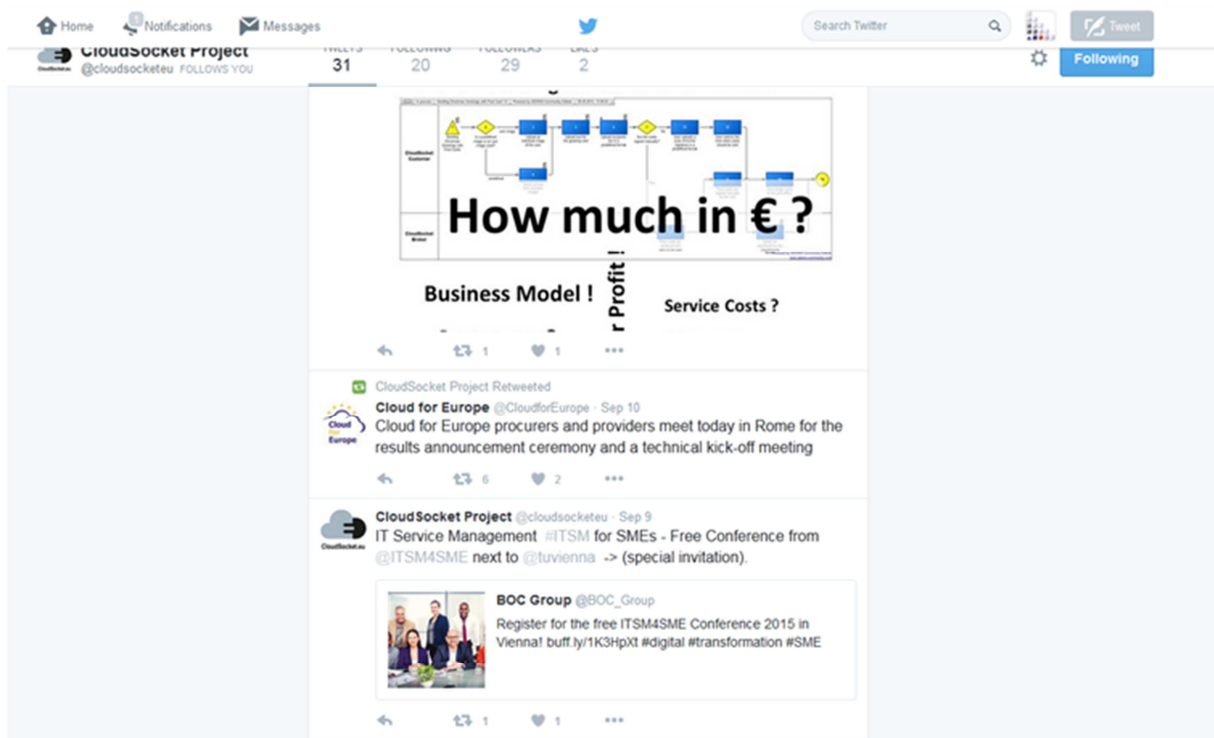
Figure 4: Screenshot of CloudSocket Tweets

Figure 4 shows community tweets pointing to conferences and meetings, as well as a content tweet, where business aspects in BPaaS are mentioned.

3 DISSEMINATION PLAN FOR YEAR 2

As the main research work package (WP 3) progresses along with the activities of WPs 4 and 5, the focus of joint and / or individual dissemination activities will be on both research and technical aspects in order to realise the CloudSocket vision and main functionality. The project will also seek additional visibility through intensified web and social media presence and participation in clustering events in conjunction with ongoing projects such as PaaSage. Ongoing activities, including articles in preparation are listed below.

BOC:
- Tutorial @ I3E – London accepted. An updated version of the *"Business Process as a Service (BPaaS)"* tutorial presented at UCC2015 will be delivered.

UULM: besides continuing to promote CloudSocket in teaching and at EC concertation events, the following conferences are considered for the publication of CloudSocket-related research results in 2016:
- CrossCloud 2016 – Presentation of results on the Cloud orchestration gained with our Cloudiator tool. Focus on the integration of SaaS, PaaS, and IaaS in one deployment tool
- Middleware 2016 – results on building a distributed monitoring infrastructure in the cross-cloud context
- SRDS 2016 – definition of resilience and fault-tolerance aspects in the context of cloud deployment and cloud orchestration.
- UCC 2016 – further evaluations on competitors to Cloudiator tool in particular with respect to resilience and fault tolerance
- Cloud Forward 2016 – continuation of the ideas "Beyond mere application structure"; improving on how to describe cloud applications, cloud application structure

FORTH: the paper entitled "Semantic SLAs for Services with Q-SLA", co-authored by K. Kritikos (FORTH) and D. Plexousakis (FORTH) has been submitted to the CAISE 2016 conference.

YMENS: the following are under preparation for submission to the conferences and events listed below
- White Paper - Ymens will publish on its website a white paper describing one of the most challenging technical problems in cloud computing – Identity Management– by using CloudSocket derived concepts, principles and lessons learned.
- Dissemination through articles / PR
  - Club IT&C – Q1 2016: Dedicated article presenting the project, the technology and customer impact to be included in special cloud edition for the Club IT&C magazine in February / March 2016.
- Dissemination through dedicated content
  - CloudSocket presentation: online & printed flyer – Q2 2016
  - Online CloudSocket section describing the project within Ymens website – Q3 2016
- Dissemination through events

- o CloudSocket presentation to be used for booth activation / stage speech for DevTalks 2016 and Internet & Mobile World 2016

MATHEMA: the following are under preparation for submission to the conferences and events listed below
- Dissemination through dedicated content
  - o CloudSocket presentation: online & printed flyer – Q1 2016
  - o Online CloudSocket section describing the Brokerage activities within MATHEMA website – Q2 2016
  - o Online social network awareness campaign for CloudSocket brokerage activities (Facebook, twitter) Q1-Q4 2016
- Dissemination through events
  - o JamTODAY Fair 2016 – Florence
  - o Multiverso co-working - entrepreneur lessons series 2016
  - o Tuscany ICT-Robotics cluster business match-making 2016
- Dissemination through dedicated articles
  - o CloudSocket brokerage event assessment results to be proposed at scientific and business level (e.g. IFIP-SIMPDA 2016)

ATOS: Diverse events and dissemination material are under preparation for the second year.
- Dissemination through events like:
  - o InnovAtos 2016. March 22nd, Amstelveen, Netherlands.
  - o CloudScape 2016, March 8th, Brussels, Belgium
- Dissemination through dedicated content:
  - o Business-oriented whitepaper about the CloudSocket solution, its outcomes, advantages, impact, etc.
  - o Articles about diverse CloudSocket-related topics like "yourBPM for BPaaS", "CloudSocket architecture", etc.
  - o Internal webinars to disseminate project´s outcomes and to identify potential synergies with other projects.
  - o Contribution to the online social network awareness campaign mentioned above.
  - o Generation of newsletters and/or press releases communicating project´s achievements.
  - o Internal dissemination through Atos blog (http://ascent.atos.net/)

FHNW: CloudSocket results will dontinue to be promoted in teaching and during consulting projects. In addition the following events and initiatives provide a platform to disseminate CloudSocket results:
- The Cloud Days (http://www.fhnw.ch/projekte/cloud-days) are organized by FHNW School of Business with around 150 to 200 attendees from the industry (cloud users and cloud providers). It consists of yearly Cloud Use Cases Days and branch-specific events like the GovCloud Days. The next event is the 3rd Cloud Use Cases day on 2nd of February 2016.
- In cooperation with the State Secrfetariat of Economic Affairs (SECO), the Federal IT Steering Unit (FITSU) and the ICT association SWICO, the Swiss Cloud Initiative (http://swisscloudinitiative.ch/) has been founded. It is the objective of the Swiss Cloud Intitiative to prepare small and medium companies for future challenges in the digital world.

Aboutclodu.ch (http://www.aboutcloud.ch) is a kind of "yellow pages" for cloud services. Services are categorized regarding their service quality and shown to the interested parties. It will be extended by self-service tools which accompany companies in their transformation projects. Cloud readiness approach of task 2.3 has been added to aboutcloud.ch.

4 SUMMARY

The deliverable describes the results of the dissemination actions that the CloudSocket consortium has performed in the first year of the project. A number of publications have been produced, reporting on early results of the joint activities of the project partners on the CloudSocket concept, design decisions and architecture as well as the use cases. The project has participated in a number of clustering and cooperation activities, in which consortia of other projects in the area of Cloud Computing also participated, thus paving the road for a more intensive collaboration with other ongoing activities in the forthcoming year. Additionally, tutorials presenting the model-based approach followed in the realization of the "Business Process as a Service" concept have been organized, providing training material to the participants. Finally, workshops have been organised dedicated to disseminating the initial results of CloudSocket.

As the project will soon enter its second year, dissemination activities will focus on the expected results of the three main work packages namely, WP3 (research), WP4 (technological development), and WP5 (use-case development). In parallel, the project's web and social network presence will be intensified via the enrichment of material presented on the project's web site so as to provide a more complete set of resources for the different types of stakeholders targeted. As the project gradually matures, the academic participants will have the opportunity to transfer more results into the classroom and renew the respective curricula.

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Title Photo and Icons: Members of the CloudSocket Consortium

CloudSocket

Business and IT-Cloud Alignment using a Smart Socket

"Script your business into the Cloud"

funded by the European Commission

VISION

Business-to-IT alignment ensures that IT investments are aligned with business. At the same time, business specialists are excluded from the Cloud due to missing IT expertise and the mismatch between business requests and IT-offerings. Especially SMEs are thus in danger to fall behind in Cloud usage for covering their business needs.
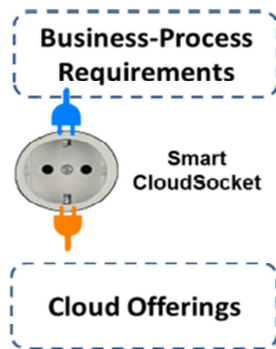

CloudSocket Vision

To this end, the goal of CloudSocket is to introduce Cloud Computing to SMEs in a way such that the latter can easily use the Cloud, benefit from the respective reduced prices and flexible IT infrastructures, as well as reduce the administrative burden.

Particular use cases have been selected to validate the achievement of the project goals which include: (a) a business incubator with Cloud computing and (b) a business process broker focusing on the Robotics sector. These use cases impose a specific set of challenges that the project aims to address with its business-to-Cloud IT alignment approach.

APPROACH

The project will follow a model-based approach for the realization of a Smart Cloud Business Process as a Service Broker platform which enables the discovery, orchestration, deployment and execution of services in the Cloud. This approach lifts the level of integration from the technical to the business layer and employs a learning cycle to improve the Cloud services.
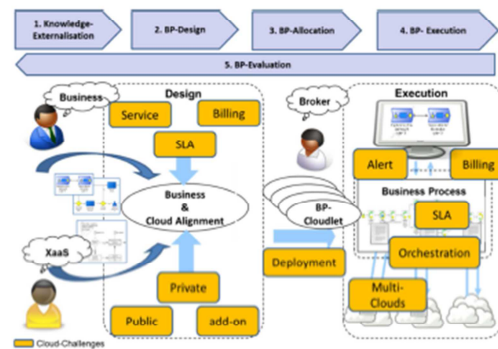

CloudSocket Concept and Approach

The platform will operate in five main phases: (a) knowledge externalization following a model-based approach to enable the understanding of the Cloud service features required, (b) BP design to map business processes to technical solutions in the form of a Cloud service-based workflow, (c) BP allocation to configure the technical solution as a BP-Cloudlet and specify deployment rules, (d) BP execution via a messaging platform for the solution orchestration and lifecycle management, multi-cloud monitoring and adaptation, and (e) evaluation for assessing whether the business requirements and Service Level Objectives are fulfilled via conceptual analytics.

REALISATION

CloudSocket will be integrated into existing marketplaces, middleware or brokerage frameworks, it does not reinvent the wheel but provides extensions to existing components in order to realize the concept of BP in the Cloud. Each platform operation phase will be supported by the respective building blocks.
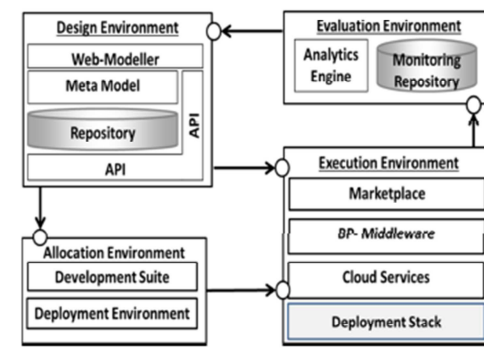
CloudSocket Building Blocks

The main architecture components envisaged are the following: (a) a BP-design environment offering meta-model and semantic kernels, (b) a BP-allocation environment based on model-driven and rapid Cloud development environment; (c) an BP-execution environment comprising a workflow engine for cloud orchestration, a middleware for cloud service discovery, a process data mediator, as well as a rule engine for self-adaptation of the service workflows; (d) a BP-evaluation environment based on a conceptual analytics engine operating over a semantic monitoring repository and complemented by a cockpit for visualization.