Context-Aware Cloud Topology
Optimisation and Simulation

Workshop Preparation
Project Deliverable D2.6

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Dissemination Level

X	PU	Public
	PP	Restricted to other programme participants (including the Commission Services)
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	CO	Confidential, only for members of the consortium (including the Commission Services)

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EXECUTIVE SUMMARY

This report sets out the preparation work for delivering a CACTOS workshop at ICT 2015 (20 – 22 October 2015), Lisbon.

The objectives of the workshop are set out, as is the process for researching, identifying and selecting events. Following this, the implementation of disseminating CACTOS at events is considered, with reference to two prior events; Cloud Expo Europe (11 – 12 March 2015, London) and SummerSOC (28 June – 3 July 2015, Crete). These events served as 'trail runs' for the CACTOS workshop at ICT. Finally, the next steps required in order to move from preparation to implementation of the workshop are provided.

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1 INTRODUCTION

CACTOS will organise at least one dedicated workshop during the course of the project. This will focus on the presentation and discussion of the results achieved so far, in order to improve visibility and uptake, but it will also serve to integrate the wider cloud community.

Accordingly, the workshop will invite feedback from participating experts in term of further application ranges, related initiatives etc. to further improve the results.

This workshop was expected to take place somewhere in the timeframe of M20 to M24, depending upon on the availability of appropriate conferences. As the major ICT 2015 event was chosen as the target event, the workshop will now be delivered in M25.

The major work in preparation of delivering the workshop has been focused around presenting CACTOS to commercial and research audiences at two separate preparation events; Cloud Expo Europe London 2015, and SummerSOC 2015.

2 WORKSHOP OBJECTIVES

In order to ensure that a CACTOS workshop provides as much value as possible to the project, it is important to set out the goals that the consortium aims to achieve. Firstly, this allows the consortium to agree on the purpose of the event. Further, by setting objectives, the preparation of the workshop has an end-point to reach. This is beneficial as it promotes clarity of purpose and allows planning to be undertaken with a clear understanding of what is to be realised. Finally, by stating objectives at the beginning of the preparing phase, it provides a point of comparison to allow for a meaningful assessment of the workshop after it has been completed. By establishing metrics, objectives allow for a point of comparison between intention and what was achieved.

The objectives of the CACTOS workshop to be held at the ICT 2015 event in Lisbon are:

- Presentation and discussion of the **results achieved so far** – The event will provide a valuable platform to inform a large number of people from our intended target audience about the work of CACTOS, and the outcomes it will produce.
- Improve **visibility and uptake** – By giving CACTOS a presence at a relevant major event, the workshop will expose the project and its outcomes to many relevant parties, giving the project visibility. Further, the content of the workshop will be geared around not only receiving feedback on the project and its outcomes, but also encouraging potential user to utilise the CACTOS tools, thus increasing uptake.
- Integrate the **wider cloud community** – The workshop will serve as a platform through which to engage the wider cloud community in the project, and maximise the impact it has on the community. The workshop may well provide opportunities to establish collaboration between CACTOS and other organisations.
- The workshop will invite **feedback from participating experts** in terms of further application ranges – The workshop will involve gaining valuable feedback on CACTOS and it's outcomes from the experts involved in the workshop. This will help ensure that the CACTOS is addressing the necessary areas, concerns, and gaps in current technology and the market.

3 RESEARCH & IDENTIFICATION OF EVENTS

The first stage of preparing to present CACTOS at events is to fully research potential opportunities, and decide which ones to pursue. During this stage, important elements to research to inform decisions on event selection are:

- Audience of event – Does the audience of the event match the audience of CACTOS? Is it the right topic of discussion?
- Purpose of event – What is the event for? Does it focus on academic research, commercial trends, or a mixture of both?
- Location of event – Must be considered in relation to the location of CACTOS partners.
- Timing of event – Especially in relation to the CACTOS cycle.

From this research, we identified ICT 2015 as the ideal event for the CACTOS workshop. This was due to the fact that:

- The audience of the ICT event is very relevant to CACTOS. The event brings together many European organizations, both research and commercial, who are involved in research and innovation in IT. Therefore, it represents a strong opportunities to connect with CACTOS' target audience, both from the perspectives of raising awareness of the research project, as well as promoting the outcomes to potential users.
- The purpose of ICT is to provide a hub for those involved in European research and innovation in the sector. Therefore, it reaches both research and commercial companies.
- The event is in Lisbon, making it accessible for all partners. Whilst the CACTOS consortium does not contain any Portuguese partners and so we have no local expertise, travel to the country is simple and it is well connected. Therefore, the location of the event does not pose a barrier to participation.
- Originally, the consortium envisaged that the workshop would take place between M20 and M24 of the project, with the proviso that this would depend on the availability of suitable events. ICT 2015 will take place in M25 of the project, and so whilst it does fall just outside of the ideal window of opportunity, this is only by one month. Therefore, it is strongly preferable to deliver the workshop at an ideal event that is just outside the ideal timeframe, rather than sticking rigidly to the M20 to M24 window and so attending an event that is much less suitable.

From our research into different events that we could deliver the CACTOS workshop at, we also identified two events which we decided to participate in as preparation for the workshop at ICT; Cloud Expo Europe 2015 (London, 11 – 12 March 2015), and the "9th Symposium and Summer School On Service-Oriented Computing", shortened to "SummerSOC" (Crete, 28 June – 3 July, 2015). These events would serve as 'trial runs' of presenting the project ahead of the workshop itself.

During the research phase, the consortium also considered Cloud Expo Europe Frankfurt (10 – 11 November, 2015), however we decided that the timing for this event was not ideal, as obtaining validation on the project course from a commercial point of view as early as possible would assist in fully realizing our main workshop with more mature tools, developed after obtaining the feedback from commercial audiences. The Frankfurt event does not take place until November 2015, and so attending the London event in March 2015 would give us earlier feedback and longer to respond to it prior to the main CACTOS workshop. Further, the Frankfurt event will take place after ICT, and so it could not serve as preparation for the workshop at ICT, meaning the only use of the Frankfurt event would be as a possible venue for the workshop. ICT was chosen over Cloud

Expo Europe Frankfurt as the venue for the CACTOS workshop as Cloud Expo Europe Frankfurt focuses on industrial and commercial audiences, whereas ICT will also allow us to reach the research community.

As events through which to prepare for our CACTOS workshop at ICT, Cloud Expo Europe London and SummerSOC complimented each other well; Cloud Expo focused on commercial audiences from whom we could get feedback on the outcomes of CACTOS as products in the market, whilst SummerSOC focused on academic aspects and so we could get feedback on the research was the CACTOS project was doing as a whole.

3.1 SCHEDULE OF EVENTS

The research undertaken led to the following schedule of preparation and delivery events for the CACTOS workshop:

Event 1 – March 2015

Event:	Cloud Expo Europe London
Date:	11 – 12 March 2015
Location:	London, UK
Audience:	Commercial and Industry
Reason for involvement:	- Trial of presenting CACTOS to commercial audience - Inform the delivery of CACTOS workshop at ICT 2015 - Dissemination of project

Event 2 – June/July 2015

Event:	"9th Symposium and Summer School On Service-Oriented Computing (SummerSOC)
Date:	28 June – 3 July 2015
Location:	Crete, Greece
Audience:	Academia and research community
Reason for involvement:	- Trail of presenting CACTOS to research audience - Inform the delivery of CACTOS workshop at ICT 2015 - Dissemination of project

Event 3 – October 2015

Event:	ICT 2015

Date:	20 – 22 October 2015
Location:	Lisbon Portugal
Audience:	Commercial/Industry and Academic/Research
Reason for involvement:	• Delivery of CACTOS workshop • Dissemination of project • Presentation and discussion of the results achieved so far • Improve visibility and uptake • Integrate the wider cloud community • Receive feedback from participating experts

Detailed information of the preparation events follows in section 4, with details of the implementation of our involvement in these events in sections 5. Section 6 considered the 'next steps' we will take to deliver the workshop at ICT 2015.

4 INFORMATION ON PREPARATION EVENTS

The events that CACTOS was presented at in preparation for the main workshop at ICT 2015 were spilt by the audience which they focused on; academic or commercial.

4.1 ACADEMIC AUDIENCE

4.1.1.1 9TH SYMPOSIUM AND SUMMER SCHOOL ON SERVICE-ORIENTED COMPUTING (SUMMERSOC)

SummerSOC is a well-established international forum on service-oriented computing. The area of service-oriented computing is interpreted quite broadly, i.e. areas of interest for SummerSOC include cloud computing, business process management, theoretical foundations of services, and applications in/of these areas.

SummerSOC 2015, was held 28 June – 3 July 2015, in Crete. At the event, renowned researchers and leading industry practitioners presented research results as well as invited talks and tutorials on topics from these areas. PhD students also had the opportunity to present posters of their ongoing work and give plenary presentations of their theses. The agenda ensured that enough time was allocated for a lot of discussion. Participants typically came from academia, but the event also attracted those in industry from all over the world.

4.2 COMMERCIAL AUDIENCE

4.2.1.1 CLOUDEXPO EUROPE LONDON 2015

CloudExpo Europe is Europe's biggest, best-attended and multi-award winning cloud conference and exhibition. It took place on the 11th and 12th March 2015 located at ExCeL Exhibition Centre, London.

It is the UK's largest IT event, the largest cloud event in Europe and the world's largest independent cloud event. There was a total audience of 15,286 a number that was independently audited by the BPA. Cloud Expo Europe wasn't just about big attendee numbers for CACTOS, as it also attracted senior attendees from the enterprise and cloud ecosystem industries.

Further, the event was co-located with Data Centre World, which attracted 11,958 visitors making it the worlds largest and most influential gathering of data centre expertise for data centre professionals and the data centre industry. This audience was particularly relevant for CACTOS giving the outcomes of the project target this group heavily and so the event represented a valuable opportunity to expose CACTOS to, and network with, members of our core audience, as well as identify and assess potential market analysis leads.

5 IMPLEMENTATION OF PREPARATION EVENTS

5.1 SUMMERSOC

After identifying SummerSOC as the target academic preparation event for the CACTOS workshop, the initial stage of implementation was to secure the opportunity to speak at the event.

As SummerSOC focuses more on academic audiences, the usual method for securing a session would be to submit a paper, however we wanted to have a broader presentation of the project in general, as well as the outcomes CACTOS will produce. Therefore we considered the Call for Papers in order to ensure our proposal was relevant to the wider conference, prior to contacting the organisers with our proposal.
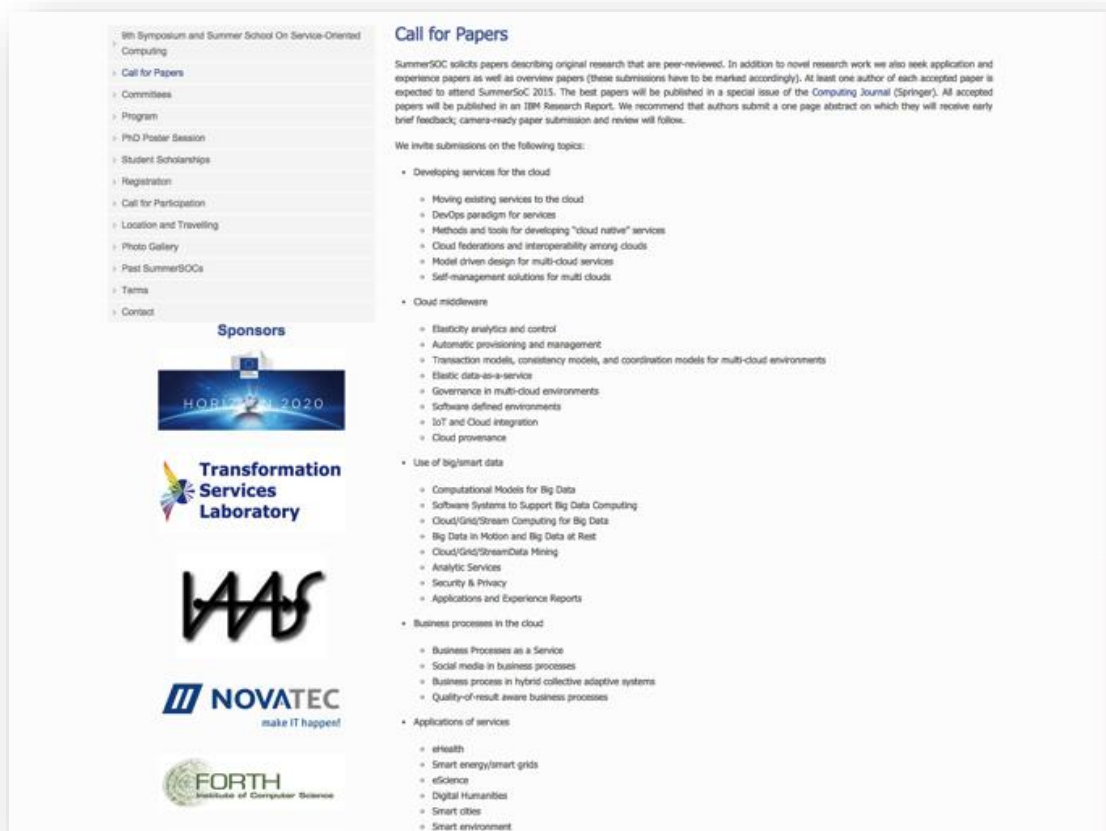

Figure 1: The SummerSOC Call for Papers

From the Call for Papers, we identified the following relevant areas:

- Cloud middleware
  - Elasticity analytics and control
  - Automatic provisioning and management

- Developing services for the cloud
  - DevOps paradigm for services
  - Methods and tools for developing "cloud native" services

Based on this, contact was made with the programme committee responsible for the programme of the event. This consisted of leading experts, faculty at well-known universities, and industrial R&D leaders in the field of Service-Oriented Computing. All of them have been involved in previous efforts to establish Services Science as a fundamental paradigm for computing and software architecture. They agreed to include the presentation in the programme for the conference, as a project presentation session that enabled us to follow the intended format.

Craig Sheridan (FLEX) presented CACTOS to SummerSOC in a session called "FP7, H2020 and Flexiant – innovation in action".
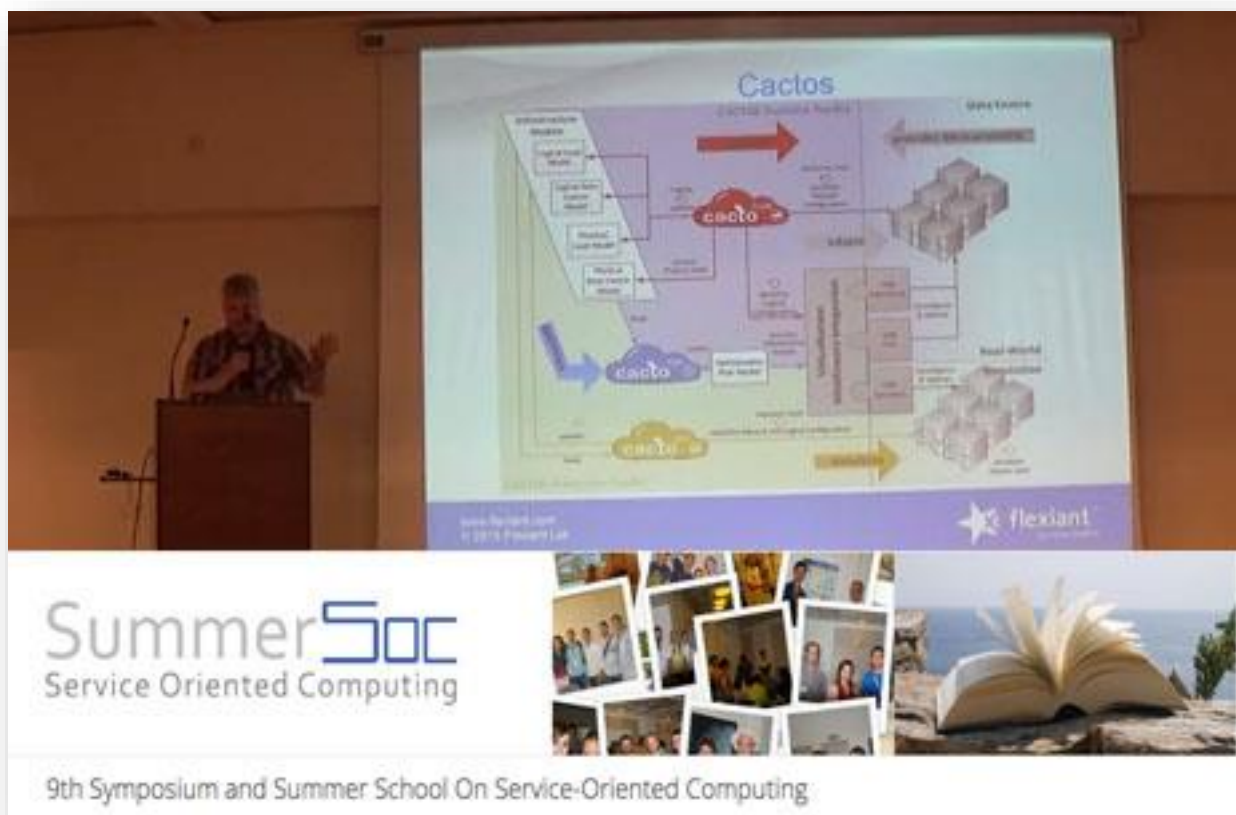

Figure 2: Craig Sheridan (FLEX) presents CACTOS to SummerSOC

In order to maximise the impact the session delivered, the presentation was filmed and uploaded to YouTube, and was linked to from the SummerSOC website. This means that not only did the presentation promote the CACTOS project and the CACTOS tools to the audience at SummerSOC, but also it continues to serve further purposes.

Firstly, those in attendance at SummerSOC will be able to refer back to the presentation, viewing it again online. This means that they will be able to ensure the fullest use of information provided. Further, it also

opens the possibility of attendees circulating the recorded presentation to colleagues and other interested parties. This helps to extend the reach of the presentation beyond those in attendance.

Additionally, recording the presentation provides valuable content to use for wider dissemination purposes. Utilising the video as marketing collateral will help drive users to the website and further disseminate the project.

Recording the presentation delivered at SummerSOC therefore helped to maximise its impact, and so we will ensure that the CACTOS workshop to be delivered at ICT 2015 is filmed in a similar way.

5.2 CLOUD EXPO EUROPE, LONDON

Cloud Expo Europe London served as our preparation event for the CACTOS workshop that focused on commercial target audiences.

Through our research we identified an ideal place in the programme for CACTOS to be presented. The event featured an "Open Cloud Park" which was a large exhibition area and dedicated theatre specifically focusing on open source activities. Therefore, this provided a perfect forum to disseminate CACTOS as a project, as well as the outcomes that the consortium intends to produce.

Participation in this stream allowed us to focus our efforts on a CACTOS-specific event. This was especially beneficial given that Cloud Expo Europe London was such a large event, making it of vital importance that CACTOS was showcased as clearly as possible, and in a way that the appropriate target audience is most likely to be exposed to the activity.

Further, the dedicated open source element, with a commercial focus, allowed us to showcase CACTOS alongside open source experts from the big players in the market of Microsoft and OpenStack in a panel discussion including examining new open source cloud technologies. Commercial interest is better developed this way, by focusing on the needs of the customer rather than a technical overview of the CACTOS ideas.

Figure 3: Craig Sheridan presents CACTOS at Cloud Expo Europe London

The panel members were as follows:

Craig Sheridan, Head of Research Projects, Flexiant:

Craig graduated from Edinburgh Napier University in 2003 with a BSc Hons in Network Computing before beginning work with Motorola as a Radio Frequencies Analyser. Craig has been with FLEX since its inception in 2009 and has a wide range of Cloud technology experience. Previously he worked with Xcalibre Communications for five years in a Systems Administrator role. XCalibre were behind Europe's first public Cloud platform `Flexiscale' which led, in turn, to the founding of FLEX.

At Flexiant, Craig is responsible for managing the company's responsibilities in EU funded projects. These have included 4CaaST, OPTIMIS and the 'excellent' rated CumuloNimbo. Currently he manages 4 FP7 projects (CACTOS, CELAR, MODAClouds and PaaSage) as well as three Horizon 2020 projects (DICE, ENTICE and BEACON) for Flexiant.

Boris Devouge, Director Open Source Strategy, Microsoft

Boris specialises in start-ups and technology; creating, managing Services teams, establishing scalable engagement and business models from the get-go to support sales of innovative and disruptive technologies.

He has deep hands-on knowledge in areas such as Enterprise Infrastructure, Hardware, Unix, Linux, Cloud Computing (AWS, GCE, Eucalyptus, OpenStack, Azure), Virtualization (VMware, KVM, Hyper-V), Storage and Hadoop amongst others. He is also a early OpenStack community member.

Brois has strong international experience of building teams and working with customers and prospects throughout EMEA, Asia and North America, as wel as experience establishing direct channels to market and indirect through System Integrators, Value Add Resellers and Independent Software Vendors.

Jesse Proudman, CTO, Blue Box

Jesse has had a passion for Internet infrastructure since the age of 13, specifically for the infrastructure "plumbing" that powers the Internet. Over the past 17 years, he has participated in almost every facet of infrastructure operations. Moving from systems administration and operations to software development, and then from CEO to CTO, he has been in the position of being able to manifest his passion into day-to-day execution.

In 2006, Blue Box launched a public cloud powered by containers. Building the company based on that technology offering, Jesse was able to watch the meteoric rise of OpenStack and to become engrossed with the power of the ecosystem. He began to closely watch OpenStack in 2011 and became an avid fan shortly thereafter. As the CTO of Blue Box, an OpenStack based Private Cloud as a Service company; he is presently focused on bringing the power of OpenStack into the hands of the masses and on eliminating as much of the operational burden commonly associated with the offering as possible.

He is a voice of the OpenStack Operator as an active blogger, through interactions with the press and analyst community, and in speaking engagements at a wide range of events.

Figure 4: The video of Craig Sheridan presenting CACTOS at Cloud Expo Europe London

As part of the panel Craig Sheridan introduced CACTOS to this forum, and delivered an 'elevator pitch' to summarise CACTOS as a product offering.

He said the following;

> *"CACTOS is all about Context aware platforms and optimisation and simulation, which sounds quite wide scoped but it's very focused actually"*

> *There are three key components: CactoScale, which essentially is a probe to gauge run-time metrics on the logical and physical levels. That has the ability to map data centres and cloud platforms to show what they look like and the current state of affairs...*

> *CactoOpt which is essentially the engine room, that's the part that takes all of this harvested data and manages to make sense of it. It uses intelligent algorithms to make deployment decisions both at deployment time and at run time...*

> *Finally, there's a simulation tool as well – CactoSim - with the idea that you can identify bottlenecks, and [use it] to understand what happens to these platforms once they scale as well...*

> *So an example of what [CACTOS] can actually do and what it can actually achieve, if you think of wider scenarios where resources are being constantly deployed and redeployed, this ends up with this mass-mash of resources running in different compute nodes. One of things that CACTOS does is to achieve that in a more optimal way. So the ability either to do that linearly so you've got more of a reliable QoS involved, or indeed consolidate running workloads to individual compute nodes so that compute nodes can be freed up and then powered down, and of course this can save data centres a lot of money."*

A video can be viewed at https://www.youtube.com/watch?v=pBoAKapVpFI

6 NEXT STEPS

As explored above, we have identified ICT 2015 in Lisbon as the premium location for our first 'breakout' event where we combine discussion about CACTOS with key assets (new website, prototype release, and dedicated MarComms strategy) to highlight the event.

The next steps in the process for the CACTOS workshop, is to move from the preparation stage reported on in this document, to executing and delivering the workshop.

6.1 SWOT ANALYSIS

In order to maximize the impact of the workshop, we have developed our strategy based on our SWOT analysis for this event, as well as the feedback and learning from the previous two CACTOS sessions, at Cloud Expo and SummerSoC.

Strengths	Weaknesses
• Unique event • Lots of participants • Expertise of participants • Maturity of project tools (more mature than they were)	• Competition for audience attention (15 other dedicated Cloud sessions) • Maturity of project tools (not as mature as they could be) • Other support actions competing for space in 'Cloud noise'
Opportunities	Threats
• Captive audience, large scale • Presence of media • Availability of new assets (website etc.) • Potential to gather relevant content • Expertise of panel fits target market needs, chance to get valuable feedback	• Trough of disillusionment • Reliant on time marketing • Availability/reliability of panelists • Quality of wifi • Lack of familiarity with Lisbon and venue

6.2 WORKSHOP DELIVERY ROADMAP

We would like a cross section of relevant project partners, researchers and representatives of the commercial exploitation intentions of CACTOS in order to gather relevant feedback and hone the future exploitation plan and development cycle of CACTOS.

In order to achieve this, we must now complete four delivery stages:

6.2.1 STAGE I: PRE-REGISTRATION AND SELECTION OF PANEL MEMBERS

- CACTOS will be represented by co-chair of the session, Al Innes (Exploitation Manager), Craig Sheridan (Head of Research, Flexiant, an SME), James Byrne (Research Scientist, DCU) and Lutz Schubert (ULM University, project coordinators)
- The session will also be co-chaired by Vlado Stanikovski, from the University of Ljubljana, who will represent the SWITCH (Software Workbench for Interactive, Time Critical and Highly self-adaptive Cloud applications) project that aims to achieve a major break-through in the development of time critical cloud applications. SWITCH will develop a new approach to simplifying the development of time critical applications, which is difficult due to their complexity. With the new approach developed by the SWITCH project, the user is able to include controllability of the infrastructure as part of the application specification, and make the system self-adaptable in the Cloud.
- The ENTICE project will be represented by project coordinator Thomas Fahringer. ENTICE stands for "dEcentralised repositories for traNsparent and efficienT vIrtual maChine opErations" and the project aims to deliver optimisation at the level of the VM images. This is needed both by the applications and by the underlying Cloud providers for improved resource usage, operational costs, elasticity, storage use, and other desired QoS related features. The project identifies critical barriers that prevent many users from industry, business and academia effectively using cloud resources and virtualised environments for their computing and data processing needs.
- Public Sector expertise will be provided by Tom Kirkham, Science and Technology Facilities Council (STFC) STFC is a UK government body that carries out civil research in science and engineering, and is one of Europe's largest multidisciplinary research organisations supporting scientists and engineers world-wide.
- The session also includes a panellist from the DICE project, Dana Petcu. The DICE project aims to define a framework for quality-driven development of Big Data applications. It will offer a novel UML profile and tools that will help software designers reasoning about reliability, safety and efficiency of data-intensive applications. The DICE methodology will cover quality assessment, architecture enhancement, continuous testing and agile delivery, relying on principles of the emerging DevOps paradigm.
- Other panellists to follow

6.2.2 STAGE II: QUESTIONS SUBMITTED BY AUDIENCE MEMBERS

- Audience members can use an online form to send us topics of interest, that CACTOS will address, up to the day of the event – it will then be the focus of the session to discuss where CACTOS is taking the optimisation, simulation and scalability of cloud provider solutions

6.2.3 STAGE III: THE SESSION ITSELF

- CACTOS will be presented and discussed, with feedback from panellists
- Floor will open to questions from attendees

6.2.4 STAGE IV: CONCLUSIONS

- A summary of the session results will be prepared by the panel members and published internally across the CACTOS consortium to be fed back into CACTOS development

7 CONCLUSION

Following extensive research into the best possible format and venue for a workshop, it was dedicated the CACTOS workshop will be delivered at the ICT 2015 in Lisbon. Whilst this falls slightly outside our initial intended timeframe of M20 to M24, it was agreed that given the ideal nature of the ICT 2015 event it was worth delivering the workshop one month out of the initial window.

In order to prepare for the CACTOS workshop, we have used two separate events to prepare in advance; one for academic audiences, and another for potential commercial users. These 'rehearsals' not only perform dissemination activity for CACTOS in themselves, but also are a means to ensuring that we are well prepared for the CACTOS workshop at ICT. From participating in them, we have been able to practise delivery, and minimise any risk to the workshop.

We are now moving from the preparation stage, reported on in this deliverable, to the execution stage. In order to successfully delivery the workshop, we have planned a roadmap for delivery (section 6.2) covering four different crucial stages. By following this plan, the CACTOS workshop will have the greatest impact possible, and a successful workshop delivery achieved.