Symbiosis of smart objects across IoT environments

688156 - symbIoTe - H2020-ICT-2015

Report on first External Liaisons Workshop

The symbIoTe Consortium

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Document Control

Title: Report on first External Liaisons Workshop

Type: Public

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Doc ID: D7.2_v3.docx

Amendment History

Version	Date	Author	Description/Comments
v1.0	15/12/2016	Sergios Soursos	Initial version
V1.1	19/12/2016	Sofia Aivalioti	Added material about the information campaign
v1.2	21/12/2016	Ivana Podnar Žarko	Added material on post proceedings
V2.0	22/12/2016	Sergios Soursos	Added missing sections
V2.1	23/12/2016	Maria Bianco	Internal Review
V3.0	23/12/2016	Sergios Soursos	Final Editing

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Executive Summary

As a Research and Innovation Action, symbIoTe has to open the theoretical and practical challenges around IoT interoperability to the research. The organization of a scientific workshop focusing on these topics would attract researchers across Europe to share experiences and exchange ideas on their work. Hence, symbIoTe, together with BIG-IoT (a sister project belonging to the IoT-EPI cluster), co-organized the "2nd International Workshop on Interoperability and Open Source Solutions for the Internet of Things", co-located with the IoT 2016 conference, in Stuttgart, Germany, on November 7, 2016.

The workshop proposal was submitted to the conference organizing committee in May 2016. The acceptance notification was received in June 2016 and the final Call for Papers was published by the end of June 2016. The Call for Papers was open till end of September 2016 and the accepted papers, after being reviewed by the workshop's technical program committee, were notified by the end of October 2016.

In total, 13 papers were accepted for presentation, out of the 17 submitted. symbIoTe had two papers while BIG-IoT had 3 papers accepted. The topics covered from the accepted papers to be presented varied and where organized in four sessions: i) Semantic Interoperability, ii) Interoperable Architectures and Platforms, iii) Business Models and Security, iv) Platform Performance and Applications. Ralph Mueller, from Eclipse Europe GmbH, was the invited speaker of the workshop and his talk was entitled "Innovation with Open Source". The participation was quite high (approx. 40 participants) and there were many participants from organizations not related to the two IoT-EPI projects, which renders the overall workshop successful.

The post proceedings of the workshop are currently under preparation. The initially accepted and presented papers are undergoing a second review phase, where authors need to address the review recommendations of the first review phase. Once all papers are reviewed, the program committee will decide the 10-12 papers to be included in the post proceedings.

symbIoTe plans to organize a second workshop towards the middle of its third year (2018), focusing on the main outcomes of the project and the identified by then challenges that the consortium was faced with in the meantime. Collaboration with other IoT-EPI projects on the organization of the second workshop will again be sought, perhaps involving more than one project.

1 Introduction

As a Research and Innovation Action, symbIoTe has to open the theoretical and practical challenges around IoT interoperability to the research community so as to stimulate discussions, receive and provide feedback on specific research topics, as well as to eventually provide a solution that is innovative and aligned with the research trends. One of the means to achieve the aforementioned goal, is to organize scientific workshops and invite researchers and innovators to present their ideas, share their experiences and exchange ideas.

During this first year of life, symbIoTe spent a lot of time in reshaping and fine-tuning the original ideas, as well in crystallizing the approach to be adopted. Hence, apart from submitting papers to various conferences and journals, the end of the first year was a good opportunity in organizing a workshop to share the vision of the project with the IoT research community. Together with BIG-IoT, a sister project belonging to the IoT-EPI cluster with similar vision, symbIoTe co-organized the "2nd International Workshop on Interoperability and Open Source Solutions for the Internet of Things" , co-located with the IoT 2016 conference, in Stuttgart, Germany. This deliverable hence provides the organization details of the workshop.

The remainder of this deliverable is organized as follows: Section 2 provide the details for the preparation of the workshop, from the initial idea and the submission of the workshop proposal, to the dissemination of the Call for Papers. Section 3 provides the details from the actual workshop, i.e., the workshop agenda, the participants and the workshop post proceedings under preparation.

2 Workshop preparations

The section provides the details on the preparation of the workshop, from the initial idea, to the collaborations for shaping the workshop objectives and topics and to the final Call for Papers (CfP) and the selection of the Technical Program Committee (TPC).

2.1 Motivation

From the proposal-writing phase of symbIoTe, we thought that it would be a good idea to organize within the first year of the project, a workshop around the main concepts and research topics of the project, so as to bring together researchers from Europe to exchange ideas and learn about each other's experiences. After a couple months from the launch of the project, our approach and research challenges became clearer, hence the focus of the workshop started shaping. In the beginning of April 2016, a few weeks before our 2nd plenary meeting, we identified that a good opportunity would be to submit a workshop proposal at the 6th International Conference on the Internet of Things (IoT 2016 - http://www.iot-conference.org/iot2016/), taking place on November 2016 in Stuttgart.

Moreover, there was a decision to try to involve one more IoT-EPI RIA project in the organization of the workshop, so as to promote the collaboration within IoT-EPI. Additionally, key people from all the IoT-EPI RIAs could be also involved as members of the technical committee. Finally, the IoT-EPI CSAs, and more specifically Be-IoT, could help us promoting the workshop and attracting submissions and participants.

2.2 IoT-EPI involvement

By mid April 2016, we approached BIG-IoT, as one of the RIAs with similar focus and approach with symbIoTe, as identified during the first IoT-EPI meeting in Brussels, end of January 2016. After a discussion between the Project and Technical Coordinators of the two projects, there was an agreement in co-organizing the workshop, by initially working together on the workshop proposal to be submitted to the organizers of the IoT 2016 conference. It was decided that the organizers of the workshop would be the following:

- Program Committee co-chairs
  - o Ivana Podnar Žarko, University of Zagreb, symbIoTe Technical Coordinator
  - o Martin Serrano, National University of Ireland Galway, BIG-IoT partner
  - o Arne Broering, Siemens AG, BIG-IoT Technical Coordinator
  - o Sergios Soursos, Intracom Telecom, symbIoTe Project Coordinator
- Publicity Chair
  - o Sofia Aivalioti, Sensing and Control, symbIoTe Dissemination WP Leader

The workshop was named "2nd International Workshop on Interoperability & Open Source Solutions for the Internet of Things (InterOSS-IoT)", as a follow-up of a previous workshop co-organized by two of the InterOSS-IoT 2016 co-chairs (see Sec. 2.3 for more details). Moreover, the web page of the workshop was decided to be hosted at the IoT-EPI web site (http://iot-epi.eu/inteross-iot-workshop/, see Figure 1). All the information about the workshop would be placed there and only a short summary with links to the IoT-EPI page

will be hosted on the web sites of the two RIA projects (see Figure 2 for symbIoTe's summary page).

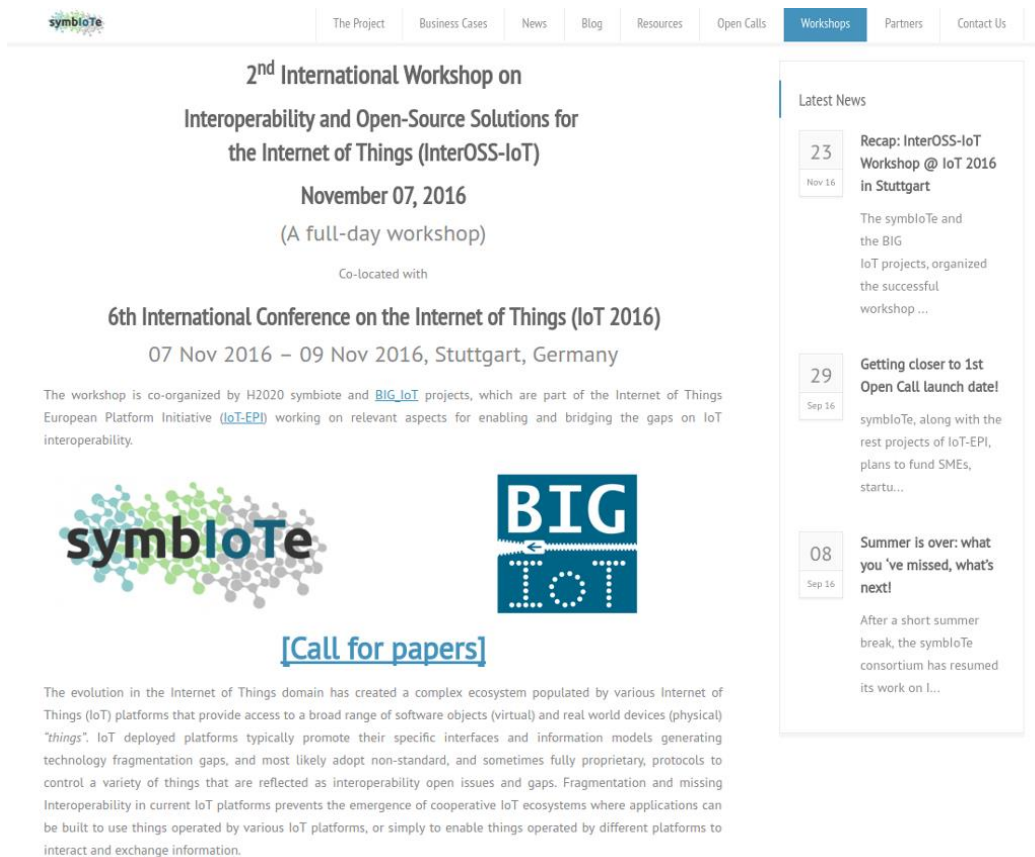Figure 1 – The header of the workshop page hosted on IoT-EPI's web site

Figure 2 – The workshop summary page at symbIoTe's web site

2.3 Previous workshop

The organized workshop is actually the 2nd edition of the workshop organized by the FP7 OpenIoT project, on the 18th of September 2014, in Split, Croatia, co-located with the SoftCOM 2014 conference. Dr. Martin Serrano and Prof. Ivana Podnar Žarko have participated in the organization of the 1st workshop, hence organizing its 2nd edition, was a straightforward thing to do, especially since the title and scope were in line with the objectives of the new workshop.

2.4 Topics / CfP

The workshop proposal was submitted to the IoT 2016 organizers on the 27th of May, 2016 and the confirmation of its acceptance was received on the 9th of June, 2016. The workshop's topics of interest included, but were not limited to, the following:

IoT Design and Principles

- Interoperability solutions for the IoT

- Federation of IoT platforms

- Standardisation efforts related to the IoT

- Core components and aspects for interoperable IoT architectures

- Semantics and information models for the IoT

- Security and privacy for IoT solutions

- Recent advances in open source IoT platform(s)

IoT Technologies and Experiments

- Experimentally-driven Internet of Things experience

- Interoperability in relation with European IoT platforms

IoT Practice and Applications

- Business perspectives on IoT ecosystem creation

- Interoperable IoT Applications in areas such as: Smart Cities, Wearables, Agrifood Sector, Industrial IoT, Connected and self-driving car, or Healthcare & Wellbeing

- Interoperable open source Internet of Things implementations

The complete proposal for the workshop is attached as Appendix A – Workshop proposal while the final Call for Papers text is available as

Appendix B – Workshop Call for Papers.

2.5 TPC committee and reviewing process

A preliminary list was included in the workshop proposal, but the TPC members were contacted after the acceptance of the workshop. The final TPC list included members from both the IoT-EPI community (symbIoTe, BIG-IoT, AGILE, bIoTope, TagItSmart, UNIFY-IoT) as well as external experts, with the number of external members being slightly higher. The final list consists of 24 members and is included below (as well as in

Appendix B – Workshop Call for Papers):

- Alexander Gluhak, Digital Catapult, UK
- Arkady Zaslavsky, CSIRO, Australia
- Charalampos Doukas, CREATE-NET, Italy
- Cosmin-Septimiu Nechifor, Siemens, Romania
- Danh Le Phouc, TU Berlin, Germany
- Erno Kovacs, NEC
- Florian Michahelles, WoT Research Group, Siemens, Berkeley USA
- Gianluca Insolvibile, Nextworks, Italy
- Jean-Paul Calbimonte, EPFL, Switzerland
- Jelena Mitic, Siemens, Germany
- John Soldatos, AIT, Greece
- Kary Främling, Aalto University, Finland
- Mirko Presser, Alexandra Institute
- Oscar Corcho, Universidad Politecnica de Madrid
- Ovidiu Vermesan, SINTEF, Norway
- Patricia Martigne, Orange
- Payam Barnaghi, University of Surrey, UK
- Prem Jayaraman, RMIT University, Australia
- Reinhard Herzog, Fraunhofer IOSB,
- Srdan Krco, DUNAVNet, Serbia
- Stefan Schmid, Bosch Corporate Research, Germany
- Steffen Lohmann, Fraunhofer IAIS, Germany
- Tajana Šimunic Rosing, University of California, San Diego, USA
- Thomas Usländer, Fraunhofer IOSB, Germany

For the reviewing process, each TPC member was assigned 2-3 papers to review. Our target was that each reviewed paper receives 3-4 reviews so that the authors could receive valuable feedback on their submissions and the chairs could easily decide which submissions to accept for presentation.

It is important to note at this point that the review was split in two phases: in the first phase, all papers were reviewed and the organizers selected the best ones to be presented during the workshop. In the second phase, the authors of the presented papers had some additional time after the workshop to address the reviewers' comments. A second round of reviews then took place, in order to decide the papers to be included in the workshop proceedings. For more details on the proceedings, please check Section 3.4.

2.6 Information Campaign

Representatives of symbIoTe and BIG-IoT projects formed a team that organized the information campaign. IoT-EPI team members also assisted on this task. To organize the campaign, we identified several internal and external channels of dissemination and contacted them via e-mail or by creating posts on online media. The organization of the information campaign started soon after the confirmation of the workshop approval and lasted up until the day of the event. It was organized into two parts: the first, most important part aimed to reach interested researchers and practitioners early in time and it was conducted during the last week of July and the first week of August. While the second part, consisted of reminders during September and October together with regular posts in social media. The information campaign aimed primarily to attract experts interested to submit their papers and at a second degree to build the audience of the workshop.

The internal information campaign was conducted using the organizers and affiliated organization communication channels (website, Twitter, Facebook, LinkedIn and mailing lists). The use of the social media was constant.

The external information campaign used official EC channels such as the CORDIS and the Commission's Research and Innovation website. We also disseminated on nine influential IoT channels such as AIOTI, IIC, IoT Events, IoT IEEE, IoT Council and IERC, three research channels such as *CfP Wiki*, the *TCCC-Announce* and the *dbworld* mailing lists, one local group the *IT Region Stuttgart*, as well as three LinkedIn groups, i) the *Digital Single Market* of 4,511 members, ii) *IoT Tech – Internet of Things News and Events* of 2,915 members and iii) the *Technology Events and Conferences* 3,876 members and finally a twitter group named *IoT Events* of 1,110 followers.

3 Workshop details

In this section, we provide more details about the impact of the workshop, i.e., how many submissions were received, how many papers were selected for presentation, the participation during the and the overall impressions.

3.1 Accepted presentations, workshop agenda and invited talk

There were in total 17 papers submitted, out of which 13 were accepted for presentation, with minor or major revisions, as outcome of the first reviewing phase. For a complete list of submitted, accepted and rejected papers, please consult Appendix C – Submitted Papers. Out of the 13 papers, there were 2 papers from symbIoTe (on semantic interoperability and security) and 3 papers from BIG-IoT (on architecture, security and business models), while the rest were from external participants.

For the workshop agenda, the presentations were organized in four sessions: i) Semantic Interoperability, ii) Interoperable Architectures and Platforms, iii) Business Models and Security, iv) Platform Performance and Applications. Ivana Podnar Zarko opened the workshop and Sergios Soursos presented the symbIoTe approach during the second session. More details on the workshop agenda are provided in Figure 3.

Time	Paper authors / presenters	Title	Chair
09:00 – 09:15		*Arrivals and presentation arrangements*	
09:15 – 09:30	Ivana Podnar Žarko	Opening and Logistics	
09:30 – 10:30		**Session 1: Semantic interoperability**	
09:30 – 09:50	**Michael Jacoby**, Aleksandar Antonic, Karl Kreiner, Roman Lapacz and Jasmin Pielorz	Semantic Interoperability as Key to IoT Platform Federation	Arne
09:50 – 10:10	Aqeel Kazmi, Zeeshan Jan and Martin Serrano (**Achille Zappa**)	Overcoming the heterogeneity in the Internet of Things for Smart Cities	
10:10 – 10:30	**Tobias Käfer**, Sebastian Bader, Lars Heling, Raphael Manke and Andreas Harth	Exposing Internet of Things Devices on REST and Linked Data Interfaces	
10:30 – 11:00		*Coffee Break*	
11:00 – 12:30		**Session 2: Interoperabile architectures and platforms**	
11:00 – 11:20	Arne Bröring and Sergios Soursos	IoT-EPI (BIG-IoT & symbIoTe)	Achille
11:20 – 11:40	**Stefan Schmid**, Arne Bröring, Denis Kramer, Sebastian Käbisch, Achille Zappa, Martin Lorenz, Yong Wang, Andreas Rausch and Luca Gioppo	An Architecture for Interoperable IoT Ecosystems	
11:40 – 12:00	Argyris Samourkasidis and **Ioannis N. Athanasiadis**	A Sensor Observation Service extension for Internet of Things	
12:00 – 12:20	**Ola Angelsmark** and Per Persson	Requirement-based Deployment of Applications in Calvin	
12:20 – 12:30		Backup time	
12:30 – 14:00		*Lunch Break*	
14:00 – 14:30	**Ralph Mueller**	**Invited Talk – Eclipse Foundation Europe GmbH**	Ivana
14:30 – 15:30		**Session 3: Business models and security**	
14:30 – 14:50	**Werner Schladofsky**, Jelena Mitic, Alfred Paul Megner, Claudia Simonato, Luca Gioppo, Dimitris Leonardos and Arne Bröring	Business Models for Interoperable IoT Ecosystems	
14:50 – 15:10	Juan Hernández-Serrano, Jose L. Muñoz, Arne Bröring, Oscar Esparza, Lars Mikkelsen, Wolfgang Schwarzott, Olga León and **Jan Zibuschka**	On the Road to Secure and Privacy-preserving IoT Ecosystems	
15:10 – 15:30	**Savio Sciancalepore**, Michal Pilc, Svenja Schröder, Giuseppe Bianchi, Gennaro Boggia, Marek Pawlowski, Giuseppe Piro, Marcin Plociennik and Hannes Weisgrab	Attribute-Based Access Control scheme in federated IoT platforms	
15:30 – 16:00		*Coffee Break*	
16:00 – 17:30		**Session 4: Platform performance and applications**	
16:00 – 16:20	Alexey Medvedev, Alireza Hassani, Arkady Zaslavsky, Prem Prakash Jayaraman, Maria Indrawan-Santiago, Pari Delir Haghighi and Sea Ling (**Petr Fedchenkov**)	Ingestion and Storage Performance of IoT Platforms: Study of OpenIoT	Sergios
16:20 – 16:40	**Thomas Kubitza**	Apps for Environments: Running Interoperable Apps in Smart Environments with the meSchup IoT Platform	
16:40 – 17:00	**Nenad Stojanovic** and Aleksandar Stojadinovic	Using semantics and open standards for personal real-time big data processing: Experience from a case study in Remote Patient Monitoring	
17:00 – 17:20	**Julius Pfrommer**	Semantic Interoperability at Big-Data Scale for the Industrial Internet of Things with the open62541 OPC UA Implementation	
17:20 – 17:30		*Workshop Closing*	
17:30		*End of Workshop*	

Figure 3 – The InterOSS-IoT 2016 workshop agenda

An important aspect of the workshop was the invited talk, since it would be a means to attract more participants. For this, we invited Ralph Mueller, from Eclipse Europe GmbH, to give a talk on "Innovation with Open Source".

3.2 Participation, discussion items and overall impressions

The workshop attracted much participation from people outside the two co-organizing projects. There were around 40 people attending the workshop, out of which only 9 where from symbIoTe and BIG-IoT. Among the participants, there were people from organizations like TeamViewer, KIT, Wageningen University, Ericsson Research, National University of Singapore, University of Stuttgart, Nissatech, ITMO University, to name a few.

The overall comments we received were quite positive: the workshop was well structured, with a nice balance between theoretical studies and practical solutions and covered a wide range of topics: from security to business models and from performance analysis to semantics. We have witnessed vivid discussion on semantic interoperability as well as performance issues related to real-time data processing of IoT generated data. Interesting application areas were discussed as well, such as Industry 4.0 and Smart Home. The topic of the invited talk was also very welcomed from the participants, since many of them were representing SMEs, startups or even research groups thinking to go commercial, all of these considering open source as a very valid option.

The presentations of the workshop were made available to the workshop participants and paper authors through a password-protected web page, as agreed with all authors and presenters.

3.3 News post on symbIoTe web site

After the successful completion of the InterOSS-IoT 2016 workshop, symbIoTe posted a respective news item on its web site, providing photos from the event, as well as open access to the presentations given by symbIoTe members. More information can be found here: https://www.symbiote-h2020.eu/index.php/2016/11/23/recap-inteross-iot-workshop-iot-2016-in-stuttgart/ (see also Figure 4).

Figure 4 – News post on symbIoTe's web site for the InterOSS-IoT 2016 workshop

3.4 Post-workshop proceedings

The workshop chairs have agreed to contact Springer as the publisher of post-workshop proceedings in Lecture Notes in Computer Science (LNCS) series, based on the good experience with the previous edition of the workshop proceedings, namely Interoperability and Open-Source Solutions for the Internet of Things, http://www.springer.com/gp/book/9783319165455, published as LNCS 9001. We have received a positive feedback from Mr. Alfred Hofmann on September 1, 2016, stating that *"based on the information available about the upcoming workshop so far as well as taking into account successful cooperation for the publication of a predecessor post-proceedings in LNCS, we formally accept InterOSS-IoT 2016 for publication as an LNCS post-proceedings."*

However, the publisher expects the following: *"Accepting your proposal, we expect and trust that InterOSS-IoT 2016 will attract a sufficiently high number of quality submissions to accept at least some 10 to 12 high-quality papers making up for a total of at least some 140 pages of text in the LNCS single-column format. We recommend that you encourage the authors of the papers accepted for inclusion in the InterOSS-IoT 2016 LNCS post-proceedings to revise and expand their papers in the light of the feedback they might receive from the audience upon presentation of their works at the meeting and to impose a minimum number of 12 to 15 pages per paper accepted."*

Following the publisher recommendation, we have organized the paper review process following the journal-style twostep process. In the first review step, 3 reviews were collected per submitted paper and 13 out of 17 papers were selected for presentation at the workshop. Detailed comments were provided to paper authors regarding their contributions. We are currently finishing the second review cycle to collect final reviewer recommendations to check whether the authors have adequately addressed their comments and raised issues. We are confident that 10 to 12 papers are of high quality to be included in the InterOSS-IoT workshop post proceedings. We plan to collect and submit paper source files to the published in January so that the proceedings can be published by the end of Q1 2017 (the publisher requires 9 weeks to complete the publishing process).

4 Summary and Conclusions

This deliverable provided an overview of the organization and conduction of the "2nd International Workshop on Interoperability and Open Source Solutions for the Internet of Things", co-located with the IoT 2016 conference, in Stuttgart, Germany. The initial idea was formulated in April 2016, the first discussions with BIG-IoT and IoT-EPI were held at the same time, and the workshop proposal was submitted to the conference organizing committee in May 2016. The acceptance notification was received in June 2016 and the final Call for Papers was prepared by the end of June 2016. The Call for Papers was open till end of September 2016, the review process lasted till mid October 2016 and the workshop took place on November 7, 2016.

The topics covered from the accepted papers to be presented varied and where organized in four sessions: i) Semantic Interoperability, ii) Interoperable Architectures and Platforms, iii) Business Models and Security, iv) Platform Performance and Applications. Ralph Mueller, from Eclipse Europe GmbH, was the invited speaker of the workshop and his talk was entitled "Innovation with Open Source". The participation was quite high and there were many participants from organizations not related to the two IoT-EPI projects, which renders the overall workshop successful.

The post proceedings of the workshop are currently under preparation. The initially accepted and presented papers are undergoing a second review phase, where authors need to address the review recommendations of the first review phase. Once all papers are reviewed, the program committee will decide the papers to be included in the post proceedings.

symbIoTe plans to organize a second workshop towards the middle of its third year (2018), focusing on the main outcomes of the project and the identified by then challenges that the consortium was faced with in the meantime. Collaboration with other IoT-EPI projects on the organization of the second workshop will again be sought, perhaps involving more than one project.

5 Abbreviations

CfP	Call for Papers
InterOSS-IoT	Interoperability & Open Source Solutions for the Internet of Things
TPC	Technical Program Committee

Appendices

Appendix A – Workshop proposal

<div align="center">

Workshop Proposal for the
2nd Workshop on Interoperability and Open-Source Solutions for the Internet of Things
Co-located with

6th International Conference on the Internet of Things (IoT 2016),
07 Nov 2016 - 09 Nov 2016, Stuttgart, Germany.

</div>

Name	2nd Workshop on Interoperability and Open-Source Solutions for the Internet of Things
Organizers	The workshop will be organized by two H2020 projects, symbIoTe and BIG IoT, which are part of the European Platform Initiative (IoT-EPI). Names/affiliations and contact information of the organizers: 1. Ivana Podnar Žarko (University of Zagreb Faculty of Electrical Engineering and Computing, Croatia) e-mail: ivana.podnar@fer.hr 2. Martin Serrano (INSIGHT, National University of Ireland Galway, Ireland) e-mail: martin.serrano@insight-centre.org 3. Arne Broering (Siemens, Germany) e-mail: arne.broering@siemens.com
Abstract	The evolution in the Internet of Things domain has created a complex ecosystem populated by various Internet of Things (IoT) platforms that provide access to a broad range of *things*. These IoT platforms typically promote their specific interfaces and information models, and often adopt non-standard, sometimes fully proprietary, protocols to control a variety of things. This fragmentation and missing interoperability currently prevents the emergence of cooperative IoT ecosystems in which applications can be built so as to use things operated by various IoT platforms, or to enable things operated by different platforms to interact. The 2nd *Workshop on Interoperability and Open-Source Solutions for the Internet of Things*

	focuses on this challenge. The workshop is co-organized by the symbIoTe and BIG IoT consortiums as part of the European Platform Initiative (IoT-EPI).
	The main objective of this workshop is to exchange experiences and ideas with the IoT community as well as contribute to build new knowledge around open issues and gaps on Internet of Things interoperability, architectural principles and standardization efforts. It will showcase practical experiences on interoperable IoT solutions and promote open-source solutions.
	Organized as a scientific event, the workshop will combine two keynote talks on interoperability aspects of the Internet of Things, with contributions from the participants to further advance IoT research and solution space through a specific Call for Papers (CfP). Researchers and practitioners from academy and industry will share their experiences on IoT platforms and middleware with specific focus on interoperability aspects. It is expected that a number of 6 to 10 peer-reviewed scientific articles will be selected for presentation during the workshop. Participants are expected to expand their understanding of IoT interoperability aspects and open issues, and to identify and discuss existing and emerging solutions enabling IoT interoperability, standards supporting platform interoperability, as well as open-source initiatives.
	The topics of interest for the envisioned CfP include, but are not limited to the following:
	IoT Design and Principles
	● Interoperability solutions for the IoT ● Standardisation efforts for the IoT ● Core components and aspects for interoperable IoT architectures ● Semantics and information models for the IoT ● Security and privacy for the IoT ● Recent advances in open source IoT platform(s)
	IoT Technologies and Experiments ● Experimentally-driven Internet of Things experience ● Interoperability in relation with European IoT platforms
	IoT Practice and Applications ● Business perspective on IoT ecosystem creation ● Interoperable IoT Applications in areas such as: Smart Cities, Wearables, Agrifood Sector, Industrial IoT, Connected and self-driving car, or Healthcare and Wellbeing ● Interoperable open-source Internet of Things solutions
Length	Full day

Number of expected participants	30-40
Format	Scientific workshop (2 invited talks + presentations of peer-reviewed papers) **Indicative TPC list** (to be confirmed): 1. Karl Aberer, EPFL, Switzerland 2. Payam Barnaghi, U. Surrey, UK 3. Jean-Paul Calbimonte, EPFL, Switzerland 4. Gino Carrozzo, Nextworks, Italy 5. Oscar Corcho, Universidad Politecnica de Madrid 6. Manfred Hauswirth, Fraunhofer FOKUS 7. Reinhard Herzog, Fraunhofer IOSB, 8. Darko Huljenić, Ericsson Nikola Tesla, Croatia 9. Prem Jayaraman, RMIT University, Australia 10. Mirko Presser, Alexandra Institute 11. John Soldatos, AIT, Greece 12. Tajana Šimunic Rosing, University of California, San Diego, USA 13. Thomas Usländer, Fraunhofer IOSB, Germany 14. Arkady Zaslavsky, CSIRO, Australia 15. Arndt Marylin, ORANGE 16. Elloumi Omar, Alcatel-Lucent 17. Patricia Martigne, Orange 18. Joerg Swetina, NEC 19. Cosmin-Septimiu Nechifor, Siemens 20. Florian Michahelles, Siemens 21. Ovidiu Vermesan, SINTEF, Norway 22. Steffen Lohmann, Fraunhofer IAIS, Germany 23. Victor Kardeby, Acreo Swedish ICT, Sweden 24. Kary Främling, Aalto University, Finland 25. Carlos Enrique Palau Salvador, Universitat Politécnia de Valencia, Spain 26. Raffaele Gravina, UNICAL, Italy 27. Sergios Soursos, Intracom Telecom, Greece 28. Peter Kostelnik, INTERSOFT, Slovakia 29. Jelena Mitic, Siemens, Germany
Workshop history	This would be the second edition of the following event: **Workshop on Interoperability and Open-Source Solutions** **for the Internet of Things** **organized by the FP7 OpenIoT project** **September 18, 2014**

Collocated with 22nd International Conference on Software, Telecommunications and Computer Networks (Softcom 2014), Split, Croatia

Workshop participants

Invited talk by Markus Weinberger

Selected papers published in **LNCS Volume 9001 2015**, http://link.springer.com/book/10.1007/978-3-319-16546-2

No of participants: ~40

Appendix B – Workshop Call for Papers

CALL FOR PAPERS

2nd International Workshop on Interoperability and Open-Source Solutions for the Internet of Things (InterOSS-IoT 2016)

November 7th 2016, Stuttgart, Germany
http://iot-epi.eu/index.php/inteross-iot-workshop/

Co-located with

6th International Conference on the Internet of Things (IoT 2016)
http://www.iot-conference.org/iot2016/

This year's "2nd Workshop on Interoperability and Open-Source Solutions for the Internet of Things (InterOSS-IoT 2016)" focuses on the challenges of achieving IoT platform interoperability and to promote the uptake by industry from emerging open source solutions and best practices from IoT deployment experiences. The workshop's objective is to foster the exchange of practical experiences within the IoT community, to contribute solutions for open issues on the IoT, as well as architectural principles and standardization efforts to bridge the gap of IoT interoperability. We invite authors to submit scientific papers reporting on the advances in state of the art and practical experiences on interoperable IoT solutions, as well as solutions relying on open source software, emerging concepts, or visionary papers.

The workshop is co-organized by the H2020 projects symbIoTe (https://www.symbiote-h2020.eu/) and BIG-IoT (http://big-iot.eu/), which are part of the Internet of Things European Platform Initiative (IoT-EPI - http://iot-epi.eu/) working on relevant aspects for enabling and bridging the gaps on IoT interoperability.

TOPICS

Topics of interest addressed in this workshop are include, but not limited, as follow:

IoT Design and Principles
* Interoperability solutions for the IoT (M2M)
* Standardisation efforts related to the IoT
* Core components and aspects for interoperable IoT architectures
* Semantics and information models for the IoT
* Security and privacy for IoT solutions
* Recent advances in open/source IoT platform(s)

IoT Technologies and Experiments
* Experimentally-driven Internet of Things experience
* Interoperability in relation with European IoT platforms
* Service Orchestration and IoT platforms Federation (E2E)

IoT Practice and Applications
* Business perspectives on IoT ecosystem creation
* Interoperable IoT Applications in areas such as: Smart Cities, Wearables, Agrifood Sector, Industrial IoT, Connected and self-driving car and Healthcare & Wellbeing
* Interoperable open source Internet of Things implementations
* IoT Business Models and Marketplace (B2B)
* Deployments and Industrial Solutions

IMPORTANT DATES

Submission deadline: September 16, 2016
Notification of acceptance: October 18, 2016
Workshop date: November 7, 2016
Camera-ready papers: November 30, 2016 (post-proceedings)

SUBMISSION INSTRUCTIONS

Submitted papers will be reviewed by three independent experts in the field. Post-workshop proceedings will be published in the Springer series Lecture Notes on Computer Science (LNCS). Authors are invited to submit original unpublished work, not currently under review by another conference, workshop, or journal. Full papers are restricted to 16 pages according to the Springer LNCS formatting style, including text, figures, and references.

More details on Springer LNCS formatting style here:
http://www.springer.com/computer/lncs?SGWID=0-164-6-793341-0

Submit your paper here:
https://easychair.org/conferences/?conf=interossiot2016

For further details please visit:
http://iot-epi.eu/index.php/inteross-iot-workshop/

ORGANIZATION

Program Committee co-chairs:
* Ivana Podnar Žarko, University of Zagreb Faculty of Electrical Engineering and Computing, Croatia
* Martin Serrano, INSIGHT Centre for Data Analytics, National University of Ireland Galway, Ireland
* Arne Broering, Siemens AG, Germany
* Sergios Soursos, Intracom Telecom, Greece

Publicity chair:
* Sofia Aivalioti, Sensing and Control, Spain

Appendix C – Submitted Papers

The following table summarizes the outcome of the first reviewing phase, i.e., the papers submitted (order in submission date), those accepted for presentation during the workshop as well as those rejected (in red). The accepted papers are now undergoing a second phase of reviewing so as to select the ones for publication.

Authors	Title
Ali Najim and Mahmoud Shaker	Design and Implementation IoT Cloud Moveable SCADA Supported by GSM for Industrial Application
Nenad Stojanovic and Aleksandar Stojadinovic	Using semantics and open standards for personal real-time big data processing: Experience from a case study in Remote Patient Monitoring
Tobias Käfer, Sebastian Bader, Lars Heling, Raphael Manke and Andreas Harth	Exposing Internet of Things Devices on REST and Linked Data Interfaces
Michael Jacoby, Aleksandar Antonic, Karl Kreiner, Roman Lapacz and Jasmin Pielorz	Semantic Interoperability as Key to IoT Platform Federation
Stefan Schmid, Arne Bröring, Denis Kramer, Sebastian Käbisch, Achille Zappa, Martin Lorenz, Yong Wang, Andreas Rausch and Luca Gioppo	An Architecture for Interoperable IoT Ecosystems
Argyris Samourkasidis and Ioannis N. Athanasiadis	A Sensor Observation Service extension for Internet of Things
Maryam Bagheri and Siavosh H. Movahed	The effect of Internet of Things (IoT) in education Business Model
Aqeel Kazmi, Zeeshan Jan, Martin Serrano and Achille Zappa	Overcoming the heterogeneity in the Internet of Things for Smart Cities
Juan Hernández-Serrano, Jose L. Muñoz, Arne Bröring, Oscar Esparza, Lars Mikkelsen, Wolfgang Schwarzott and Olga León	On the Road to Secure and Privacy-preserving IoT Ecosystems
Daniel Schneider, Miriam Schleipen, Holger Flatt, Olaf Sauer, Jonas Kohls, Frank Schanck and Adrian Pelz	Platforms to realize Industrie 4.0 applications - Requirements and selection guide for single board computer, gateway, box, adapter, middleware, and industrial PC
Julius Pfrommer	Semantic Interoperability at Big-Data Scale for the Industrial Internet of Things with the open62541 OPC UA Implementation

Chen Jun-Hong	WoT.City: Opensource Interoperable Software Framework for Peer-to-Peer IoT Sensor Networks
Ola Angelsmark and Per Persson	Requirement-based Deployment of Applications in Calvin
Savio Sciancalepore, Michal Pilc, Svenja Schröder, Giuseppe Bianchi, Gennaro Boggia, Marek Pawlowski, Giuseppe Piro, Marcin Plociennik and Hannes Weisgrab	Attribute-Based Access Control scheme in federated IoT platforms
Werner Schladofsky, Jelena Mitic, Alfred Paul Megner, Claudia Simonato, Luca Gioppo, Dimitris Leonardos and Arne Bröring	Business Models for Interoperable IoT Ecosystems
Alexey Medvedev, Alireza Hassani, Arkady Zaslavsky, Prem Prakash Jayaraman, Maria Indrawan-Santiago, Pari Delir Haghighi and Sea Ling	Ingestion and Storage Performance of IoT Platforms: Study of OpenIoT
Thomas Kubitza	Apps for Environments: Running Interoperable Apps in Smart Environments with the meSchup IoT Platform