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*IFIP is the global non-profit federation of societies of ICT professionals that aims at achieving a worldwide professional and socially responsible development and application of information and communication technologies.*

IFIP is a non-profit-making organization, run almost solely by 2500 volunteers. It operates through a number of technical committees and working groups, which organize events and publications. IFIP's events range from large international open conferences to working conferences and local seminars.

The flagship event is the IFIP World Computer Congress, at which both invited and contributed papers are presented. Contributed papers are rigorously refereed and the rejection rate is high.

As with the Congress, participation in the open conferences is open to all and papers may be invited or submitted. Again, submitted papers are stringently refereed.

The working conferences are structured differently. They are usually run by a working group and attendance is generally smaller and occasionally by invitation only. Their purpose is to create an atmosphere conducive to innovation and development. Refereeing is also rigorous and papers are subjected to extensive group discussion.

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Kevin Crowston · Imed Hammouda  
Björn Lundell · Gregorio Robles  
Jonas Gamalielsson · Juho Lindman (Eds.)

# Open Source Systems: Integrating Communities

12th IFIP WG 2.13 International Conference, OSS 2016  
Gothenburg, Sweden, May 30 – June 2, 2016  
Proceedings

 Springer

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## General Chairs' Foreword

Free/libre open source software (FLOSS) has had a disruptive effect on the software industry and the ways that organizations and individuals create, distribute, acquire, and use software and software-based services. The FLOSS movement has created new kinds of opportunities for software developers, such as the emergence of new business models, knowledge exchange mechanisms, and collective development approaches. Many organizations that have been known for developing proprietary software are now actively involved with FLOSS. FLOSS adoption continues to grow among businesses, governments, and other organizations. FLOSS remains important for educators and researchers, as well as an important aspect of e-government and information society initiatives, providing access to high-quality software and the code used to create it. On the other hand, the movement has introduced new kinds of challenges, especially as different problem domains embrace openness as a pervasive problem-solving strategy. FLOSS development projects can be complex yet widespread and often cross-cultural. Consequently, they require an interdisciplinary understanding of their technical, economic, legal, and sociocultural dynamics.

The goal of the 12th International Conference on Open Source Systems, OSS 2016, was to provide an international forum where a diverse community of professionals from academia, industry, and the public sector, as well as diverse FLOSS initiatives, could come together to share research findings and practical experiences. The conference also provided a forum for sharing information and education with practitioners, for identifying directions for further research, and for being an ongoing platform for technology transfer, no matter which form of FLOSS is being pursued. The major conference theme was “integrating communities”, with related themes addressing FLOSS as innovation, FLOSS practices and methods, FLOSS technologies and applications, and economic organizational and social issues of FLOSS.

Many people contributed greatly to putting together the conference this year and we owe them all a great deal of thanks. The conference program benefited from the considerable effort and contribution of time from the program chairs, Björn Lundell and Gregorio Robles, and the organization of the conference from the local conference organizer, Juho Lindman. Without their work, the event would not have happened. Sincere thanks also go to Jonas Gamalielsson for his work as proceedings chair and to Jesús M. González-Barahona, Daniel German, and Barbara Russo for their roles as industry, tutorials, and panels chairs, respectively. We also thank the members of the Program Committee and the many reviewers for their input in shaping the program.

The team of publicity chairs, led by Andrea Capiluppi, our publicity and social media chairs, comprising Jaco Geldenhuys (Africa), Tetsuo Noda (East Asia), Jamshaid Iqbal Janjua (Central Asia), Megan Squire (North America), Daniel Weingaertner (Central and South America), Ioannis Stamelos (East Europe), and Terhi Kilamo (Western Europe and Nordic), did a tremendous job by promoting the conference, thus ensuring that there was wide interest in the event in the form of submissions as well as

participation. Sincere thanks also go to Dimitris Platis, our web master who has been maintaining the website of the conference.

We also wish to thank the two universities that were involved in the organization, Chalmers University of Technology and University of Gothenburg for their support regarding the event: These universities have been of great help and financial assistance. We also wish to thank the sponsors of the event, the IFIP Working Group 2.13, and the past conference organizers, who provided a great deal of assistance during the preparation of the program as well as the actual event.

Finally, we humbly wish to thank the authors and conference attendees without whom there would be no technical program. We hope you enjoy what you have created!

Imed Hammouda  
Kevin Crowston

## Program Chairs' Foreword

It is a great pleasure to welcome you to the proceedings of the 12th International Conference on Open Source Systems (OSS 2016). The range of papers published in this book, “Open Source Systems: Integrating Communities”, provides a valuable contributions to the existing body of knowledge in the field. Contributions cover a range of topics related to FLOSS, including: organizational aspects of communities; organizational adoption; participation of women; software maintenance and evolution; open standards and open data; collaboration; hybrid communities; code reviews; and certification.

The OSS 2016 conference represents a long-standing international forum for researchers and practitioners, involved in a range of organizations and projects, to present and discuss insights, experiences, and results in the field of FLOSS. The maturity of research in our field is also reflected in the range and number of excellent contributions received.

We were very pleased to have received 38 contributions (31 full and seven short paper submissions) for the technical program, from which we included 13 full papers and three short papers (representing an acceptance rate of 41.9 % for full papers). Every paper received at least three reviews by members of the Program Committee, and was carefully discussed by Program Committee members until a consensus was reached. Based on the reviews for each paper, one of the two program chairs initiated an online discussion among the reviewers in order to reach consensus. The two program chairs facilitated this process for the different papers. All decisions were based on the quality of the papers, which considered the reviews and the outcome of the discussions. No minimum or maximum number of papers to be accepted was targeted.

The program also included two keynotes (by Leslie Hawthorn and Robin Teigland) and one panel discussion on the future of open source research. In addition to the main OSS 2016 conference, we also included a doctoral consortium, two invited talks (by Jesús M. González-Barahona and Jens Weber), and two associated workshops.

We want to give special thanks to all the people who allowed us to present such an outstanding program, and we would especially like to mention the following: the Program Committee members and additional reviewers; the session chairs; all the authors who submitted their papers to OSS 2016; and the general chairs (Kevin Crowston and Imed Hammouda). We are also grateful to a number of other people without whom this conference would not have happened, and with respect to preparing the proceedings we would like to specifically mention Jonas Gamalielsson for his support.

April 2016

Björn Lundell  
Gregorio Robles

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