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IFIP was founded in 1960 under the auspices of UNESCO, following the First World Computer Congress held in Paris the previous year. An umbrella organization for societies working in information processing, IFIP's aim is two-fold: to support information processing within its member countries and to encourage technology transfer to developing nations. As its mission statement clearly states,

IFIP's mission is to be the leading, truly international, apolitical organization which encourages and assists in the development, exploitation and application of information technology for the benefit of all people.

IFIP is a non-profitmaking organization, run almost solely by 2500 volunteers. It operates through a number of technical committees, which organize events and publications. IFIP's events range from an international congress to local seminars, but the most important are:

- The IFIP World Computer Congress, held every second year;
- Open conferences;
- Working conferences.

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 small and 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.

Publications arising from IFIP events vary. The papers presented at the IFIP World Computer Congress and at open conferences are published as conference proceedings, while the results of the working conferences are often published as collections of selected and edited papers.

Any national society whose primary activity is about information processing may apply to become a full member of IFIP, although full membership is restricted to one society per country. Full members are entitled to vote at the annual General Assembly, National societies preferring a less committed involvement may apply for associate or corresponding membership. Associate members enjoy the same benefits as full members, but without voting rights. Corresponding members are not represented in IFIP bodies. Affiliated membership is open to non-national societies, and individual and honorary membership schemes are also offered.

Imed Hammouda Björn Lundell
Tommi Mikkonen Walt Scacchi (Eds.)

Open Source Systems: Long-Term Sustainability

8th IFIP WG 2.13 International Conference, OSS 2012
Hammamet, Tunisia, September 10-13, 2012
Proceedings



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General Chairs' Foreword

Over the past two decades, Free/Libre Open Source Software (FLOSS) has introduced new successful models for creating, distributing, acquiring, and using software and software-based services. Inspired by the success of FLOSS, other forms of open initiatives have been gaining momentum. Open source systems (OSS) now extend beyond software to include open access, open documents, open science, open education, open government, open cloud, open hardware, open artworks and museum exhibits, open innovation, and more. On the one hand, the openness movement has created new kinds of opportunities such as the emergence of new business models, knowledge exchange mechanisms, and collective development approaches. 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. OSS can be complex yet widespread and often cross-cultural. Consequently, an interdisciplinary understanding of the technical, economic, legal, and socio-cultural dynamics is required.

The goal of the 8th International Conference on Open Source Systems, OSS 2012, the first to be held in Africa, was to provide an international forum where a diverse community of professionals from academia, industry, and the public sector, and diverse OSS initiatives could come together to share research findings and practical experiences. The major conference theme was long-term sustainability with OSS, with related themes addressing OSS as innovation, OSS practice and methods, OSS technologies, and more. The conference also aimed to provide information and education to practitioners, identify directions for further research, and to be an ongoing platform for technology transfer, no matter which form of OSS is being pursued.

The choice to focus the conference on open source *systems*, rather than just on open source *software*, enables us as a community to better serve our established and emerging research agendas through discovering, exploring, and comparing the similarities and differences between open source systems whose openness arises from features not necessarily in software, but in open practices, methods, technologies, and governance patterns that are informed by what we have already learned about open source software. For example, open source hardware projects often share hardware designs from which users can make the hardware package, or embed it within some other hardware system, rather than sharing and modifying the hardware itself. Should we expect to see the rise of open source hardware repositories or repositories of repositories, as we have seen in the world of open source software? The development of open source hardware systems, and other kinds of open source systems, may follow different processes than open source software. Similarly, are open source hardware projects organized and hosted in online communities in a manner that strongly or weakly follows the practices we see in open source software project communities? Again, the choice we face as

a research community is whether to embrace the diversification of the openness movement into new kinds of open source systems, or whether to maintain and further explore the world that focuses primarily on open source software. Such diversity helps outline the freshness and vitality of future research in both open source software and open source systems.

Putting together this conference this year, with a multitude of parties contributing to its success, required considerable effort and contribution of time from the program chairs, Imed Hammouda and Björn Lundell. Without their work, the event would have been impossible to organize. Sincerely, thank you both very, very much for everything!

We are also grateful to the local conference organizers, Said Ouerghi and Khaled Sammoud, without whom it would have been impossible for us to organize the first OSS event on the African continent, thus further expressing the global nature of the topic of this particular conference series. In addition, we wish to thank Syrine Tlili and Nizar Kerkeni, who acted as the public sector and community liaison chairs, respectively. Moreover, the work of industry chairs, Slim Ben Ayed and Stephane Ribas, is gratefully acknowledged.

Sincere thanks also go to Jonas Gamalielsson and Chuck Knutson for their work as proceedings chairs, and to Charles M. Schweik, Cornelia Boldyreff, Klaas-Jan Stol, Chuck Knutson, and Yeliz Eseryel for managing the doctoral consortium, which has become one of the key elements of the OSS conference series. In addition, we wish to thank Mona Laroussi, Pekka Abrahamsson, and Greg Madey for their roles as tutorial, panel, and workshop chairs. Sincere thanks also go to Alexander Lohman, our web master, for his maintenance of the web site.

The team of publicity chairs, led by Sulayman K. Sowe, our publicity and social media chair, and constituted by Nnenna Nwakanma (Africa), Tetsuo Noda (Asia), Greg Madey (North America), Carlos Denner Santos Jr. (Central and South America), Stefan Koch (East Europe), Faheem Ahmed (Middle East), Jonas Gamalielsson (West and North Europe), did a tremendous job in promoting the conference, thus ensuring a wide interest in the event in the form of submissions as well as participation.

We also wish to thank the two universities involved in the organization, Tampere University of Technology, Finland, and the University of Monastir, Tunisia, for their support of the event – these universities administered great help and financial assistance. In addition, we wish to thank the sponsors of the event, the IFIP Working Group 2.13, and 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 the members of the Program Committee without whom there would have been no technical program.

Program Chairs' Foreword

It is a great pleasure to welcome you to the proceedings of the Eighth International Conference on Open Source Systems, OSS 2012. The conference program and papers published here reflect the main goal of OSS 2012: to provide an international forum where a diverse community of professionals from academia, industry, and the public sector, and diverse OSS initiatives could come together to share research findings and practical experiences.

The maturity of research in our field is also reflected in the range and number of excellent contributions received. The technical program committee worked very hard to put together an outstanding program which included research papers, industry papers, formal tool demonstrations, lightning talks, and posters. The papers published here reflect the international communities of active OSS researchers. We received and reviewed 63 contributions (54 research and 9 industry) with an acceptance rate for full papers of 33%. This enabled us to offer sessions on a variety of topics, which included: collaboration and forks in OSS projects; community issues; open education and peer-production models; integration and architecture; business ecosystems; and adoption and evolution of OSS.

This year's keynote addresses came from six distinguished members of the OSS community. Italo Vignoli (The Document Foundation) gave the keynote address: The Sustainability of an Independent Free Software Project. This was followed by Simon Phipps (Open Source Initiative - OSI) who delivered a keynote on the OSI Reform, and Michael Widenius (Monty Program AB) with the keynote: The MySQL and MariaDB Story. Following this, Nasser Kettani (Microsoft) gave a keynote on experiences from Microsoft, followed by Mikko Kurunsaari (Gurux Ltd) with the keynote: Gurux - The Open Source Experience. Finally, Carol Smith (Google) provided the keynote: Google Summer of Code, Open Source, and Education.

Furthermore, there were two workshops on OSS education and mobile OSS, a special session on sustainable development and open source, a panel on OSS business, a doctoral consortium, and a business networking event collocated with the main conference. Overall, the program reflected a very relevant perspective on contemporary issues related to the conference theme for this year, which is long-term sustainability with OSS. In addition to the technical program, the conference also included an interesting social program. The conference also hosted the traditional Women@OSS and Nordic@OSS breakfast events.

We want to give special thanks to all the people who allowed us to put together such a topical and outstanding program, and we would especially like to mention: the program committee members and additional reviewers; the session chairs; all the authors who submitted their papers to OSS 2012; the general chairs (Walt Scacchi and Tommi Mikkonen), the local conference organizers

(Said Ouerghi and Khaled Sammoud) together with their local team, in particular Nizar Kerkeni, as well as all the other people who worked hard to make the conference a great event. Because of all of your efforts, the conference program was very rich with exciting papers and events. We hope that you enjoyed this program and that the conference provided you with a valuable opportunity to share ideas with other researchers and practitioners.

July 2012

Imed Hammouda
Björn Lundell

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