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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.

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Ernesto Damiani · Fulvio Frati
Dirk Riehle · Anthony I. Wasserman (Eds.)

Open Source Systems: Adoption and Impact

11th IFIP WG 2.13 International Conference, OSS 2015
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Proceedings

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Preface

Welcome to the 11th International Conference on Open Source Systems, marking 10 years since the initial OSS conferences. This annual conference is now recognized as the primary event for the open source research community, attracting not only high-quality papers, but also building a community around the technical program, a collection of workshops, and a Doctoral Consortium. We made several changes in planning the technical program this year. First, we sharply reduced the size of the Program Committee and added people who had not previously served on as an OSS Program Committee. That step made it easier for the Program Committee members and the Program Committee chairs to calibrate the reviews. We were very pleased to receive 50 submissions for the technical program, from which we selected 15. We are most grateful to the Program Committee members for handling the larger than average reviewing load, and for their thoughtful reviews, all done on a tight schedule.

We chose the title “Open Source Systems: Adoption and Impact” for this volume in recognition of the change in the role of open source software within companies and organizations. When the OSS conferences started in 2005, open source software was often treated as a “second-class” citizen, with many organizations claiming (incorrectly in most cases) not to use open source and its advocates viewed as being out-of-touch with “real world” software development and deployment issues. Now, however, open source software is fully mainstream. Virtually all of the major software and systems companies are active users of open source, and are often contributors as well. Companies have established their own policies for use of open source, and routinely include open source in their products. Linux servers are common, while organizations rely on Hadoop and other open source tools for managing large volumes of data. Most importantly, open source software has moved from its early status of providing functional equivalents of proprietary software to today’s situation where developers and researchers are innovating with open source software. In key software areas such as data management, cloud infrastructure, service-oriented architectures, mobile operating systems, and the Internet of Things, open source software solutions are frequently among the leaders in their category. Even so, proprietary software still has a major role, and will retain that role in the foreseeable future. Organizations and institutions still have massive existing investments in proprietary software, with many disincentives for moving away from those products. However, as organizations look for ways to save money, open source software becomes increasingly attractive, particularly as potential users gain greater confidence in its quality and security. The open source research community is helping to drive this transition, working with organizations to help them evaluate and adopt open source, often based on research studies published in the OSS

conference series. We are pleased to contribute this volume of papers to the growing body of knowledge about open source software. The research results presented in this conference can have a significant influence on the future of open source software.

May 2015

Anthony I. Wasserman
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Keynote Talks

Building a Commercial Open Source Software Company

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Abstract. This paper is based on personal experiences in building a venture-capital backed Open Source company, starting in 2005. WSO2 is now a company with hundreds of customers including major brands like eBay, Boeing, Fidelity, Trimble, UBS, and many others. For example, eBay’s systems running WSO2’s servers handle more than 6 billion requests per day. In that time there has been a significant shift in the business models, approaches, funding and valuations of Open Source Software companies.

1 Choosing a Business Model

The first challenge of creating a company around Open Source is choosing a business model. There are multiple options. You can create a company that mainly does support for an existing project, which is fundamentally a Professional Services company. This reduces the valuation of your company¹, but is quicker and more cost-effective to get started. However, most companies aspire to be Product companies. Ten years ago the most popular approach for this was to use the GPL license and to offer companies a more “business-friendly” proprietary license to those who would pay. This model was used by MySQL. Since then a more popular model has emerged - often called “Open Core”. In this model there are two versions of the product: a “community edition” that is licensed as Open Source, and an extended version that is proprietary.

WSO2 actually did not choose any of these options: we chose to use the Apache License and only have a single version, which is completely Open Source without using the GPL license, and WSO2 maintains this approach to the present day. This approach does leave the possibility that people will use the full enterprise-class product without paying. But in return it simplifies the model: when working with a community; accepting fixes; and encouraging true partnerships with customers - who become more willing to contribute to the codebase. It also creates a model where the success of the company is based on contented customers, not on license terms.

2 Changes in Open Source World

In the ten years since we started WSO2, there has been a large shift in the perception of Open Source. It is both better understood and less hyped. There is much more casual

¹ Industry standard valuations of Professional Services companies are roughly 2 – 3x revenue, whereas “Product” companies or companies with recurring revenue usually attract a valuation of 10x revenue.

use of Industry standard valuations of Professional Services companies are roughly 2 – 3x revenue, whereas “Product” companies or companies with recurring revenue usually attract a valuation of 10x revenue Open Source by companies, and governments in particular see it as a major differentiator when choosing software. However, in my experience, most commercial companies see it as just one of several factors but not the dominant one when choosing software. Ten years ago, it was seen as the “cheaper” alternative (e.g. MySQL vs Oracle). Today companies who understand Open Source well know that there are other more subtle reasons to choose Open Source: better knowledge of the code, more opportunity to influence the roadmap, more self-reliance. But the main benefit is that most Open Source projects fit well together into ecosystems and hence end up with simpler, cleaner solutions. The ability to contribute to an ecosystem is an important part of any new Open Source project or product: the ecosystems around Hadoop and Docker exemplify this.

3 Open Source Foundations

Many Open Source contributions are shepherded by foundations, such as Apache, Eclipse, OpenStack, and others. When we started WSO2, we modelled a lot of the company around practices from Apache and we also worked (and continue to work) closely with projects at Apache.

Foundations have three useful benefits to the community: independent ownership of the copyright; well-defined ground rules of operation (e.g. contribution, committership, IP rules, license, etc); and branding. However, the last few years have seen the rise of a different model: Github.

Although Github has no clear ground rules, and no enforcement or ownership of copyright, it has a strong brand and this has attracted millions of projects and forks.

4 The First Mover Advantage Is Over

In the last ten years, almost every single area has multiple open-source projects. Ten years ago, there was a considerable benefit to being the first well-known Open Source product in a market segment. Apache, MySQL, OpenOffice, and many others exemplify this. That time is over. Now, in order to succeed as an Open Source company you need to succeed just like any other company: by having a clearly visible competitive advantage independent of your software license.

Thanks

Thanks to Sanjiva Weerawarana, CEO and Founder of WSO2, and to all the team at WSO2 who have made it such a success.

How the Eclipse Community Works

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Abstract. Eclipse was the first of the open source foundations created as a consortium of corporations, starting a trend that has recently accelerated with the creation of corporate backed consortia for OpenStack, Cloud Foundry, OpenDaylight, and the like.

Mixing corporate and open source community interests in a single institution can be a recipe for conflict. But after 11 years of operation, the Eclipse Foundation remains remarkably functional and collegial. We have accomplished this by identifying a number of fundamental principles and sticking to them. This talk will describe those key principles and how we have implemented them within the Eclipse community. There will be lessons to be learned about how to balance the interests of many stakeholders, while remaining true to the core values of the broad open source community.

1 Foundations and Communities

There is a wide spectrum of open source project governance approaches, ranging from laissez faire, to Benevolent Dictator for Life, to community-supporting foundations. There is no shortage of opinion in the broader open source community about which approach is best. We do not view this as a conflict, but rather as a spectrum.

Projects and communities will have different needs and requirements during their lifetimes. In addition the other stakeholders in the ecosystem have their requirements. Something which is new and novel requires a very different governance structure than a project which has become widely adopted by industry.

2 Fundamentals Principles

The Apache Way first fully documented the key principles of openness, transparency and meritocracy, and those remain the bedrock of all well-governed open source project communities. Eclipse has added a couple of additional principles to that list such as vendor-neutrality, freedom of action, level-playing field for participants of all sizes, and community trademark control.

3 Balancing Stakeholders

It is a common assumption amongst the open source cognoscenti that the only acceptable approach to community and project governance is that the developers on the project

are responsible for all aspects of governance. The Eclipse model is a blended approach: projects are clearly self-governing meritocracies, but the governance of the Foundation itself pulls in a wider group of stakeholders.

These additional stakeholders include companies that have made a strategic commitment to Eclipse projects and technologies, companies which have adopted Eclipse technologies in their products, and (of course) the committers that work on Eclipse projects.

I will argue that this more diverse group of stakeholders has had a very positive affect on the overall governance.

4 Anti-Patterns

Eclipse was the first consortia-backed open source foundation, but in recent times it has been joined by quite a collection of others. Some of these have structural failings in their governance approaches. We'll take a look at the anti-patterns in the consortia-led foundations.

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