From April 2 to 5, the Dagstuhl Seminar 08142 "Combining the Advantages of Product Lines and Open Source" was held in the International Conference and Research Center (IBFI), Schloss Dagstuhl. During the seminar, several participants presented their current research, and ongoing work and open problems were discussed. Abstracts of the presentations given during the seminar as well as abstracts of seminar results and ideas are put together in this paper. The first section describes the seminar topics and goals in general.

Brief, general introduction to the topic

Practitioners and researchers have already identified the potential cross-fertilisation benefits of software product lines and open source software development.

Product line development is being established as an important way of producing software in companies. This ensured an efficient way to obtain a variety of products. It is also an important contemporary research issue, as indicated by the recent special issue of Communications of the ACM, December 2006.

Using open source software appears to be a profitable way to obtain good software. This is a result of several of its properties, ranging from effective feedback to the openness of the source. At a first glance open source and product line practices are conflicting.

This workshop aims to find ways to overcome these conflicting practices and how to profit from both approaches. Product line engineering can improve in agility and fast feedback improving the quality of the result. Open source software development can profit for variability management techniques, developed in product line engineering to improve the efficiency to deal with a diversity of configurations.

In-depth description of the topic

Product line engineering sets up several processes to enable efficient management of reuse and variability. As a consequence, a large initial investment is done, and a lot of rules are put down to enable ease of traceability and the insurance that different sets of requirements lead to a fast production of diverse products. In principle product line engineering is a top-down process.

This process is often executed in large developments within compaies involving distributed development. This distribution factor makes product-line engineering complex. How to ensure that the rules are followed in a distributed organisation.

Development of open source software typically starts bottom-up. As such, it has in many cases shown to be an effective way to get a large group of people working together on the same topic, building high quality software. Often, the people did not met before, but they share the interest for the code they are dealing with.

Open source development is intrinsically distributed, and practices may a lot to offer to traditional distributed development. In fact, the open source development model has been adopted by companies as "inner source development", as a way to improve their distributed development.

Product line practices involving the planning and management of variability and reuse may be useful for open source communities and companies adopting open source practices. Many tools available within the open source world deal with versions and configurations. However they still do not perform effectively and friendly at the level of a user wanting to configuring the software.

Participants

The seminar was visited by 15 participants from the product line world and from open source communities. Most of them presented a position paper giving rise to a lot of discussion.

The position papers were divided in several sessions:
Using open source practices in industrial software development
- Gary Chastek: A product line organization using an open development method
- Patrick Oor: Balancing Technology, Organization, and Process in Iner Source Bringing Inner Source to the TOP

Relationship with model driven development
- Anders Mattson: Automatic architectural enforcement
- Hans Petter Dahle: MOSIS project data

Use of open source software in product lines
- Jaejoon Lee: Adapting Open Source Software for Establishing Product Line Infrastructures
- Daniel M. German: Intellectual Property: the big challenge in incorporating open source software into proprietary   software product lines
- Jesús Bermejo: Open source middleware

Business concerns:
- Stephan Koch: Where to draw the line on open sourcein software product lines?
- Jilles van Gurp: From SPLs to Open, Compositional Platforms
- Øystein Haugen: Introducing Product Lines through Ope Source Tools

Discussions

In addition several hours were spend on two discussion topics, selected during the first day of the seminar:

tools and architecture

The discussion dealt with the interest to build PL architecture tools within open source, also to get benefits in the open source world. As these are modelling tools, interest in the open source world may be low, since there are not many examples of open source modelling tools.

Is it possible to start a community around such tools? Only if thee is a donation of a reasonably good tool, that have its merits outside a single company, especially configuration tools may be usable.

The discussion did not lead to a publication, but it produce an abstract on "open product lines" for a presentation at the OSGi world-event in Berlin in June. This abstract is accepted.

practices and organisation

This discussion dealt with the use of open source development practices within an industrial development. As here are already several examples of these, the discussion lead to a proposal for a publication.<