

OOPSLA Workshop Proposal

“Escaped from the Lab: Crossing the Gap from Invention to Practice”

What are some of the common practices for taking new ideas and converting them into products?

In the original “Escaped from the Lab” workshop at OOPSLA 2006, the following scenario was used as a jumping off point for discussion:

“An important dynamic in large organizations: one part of the organization over-commits (promises the earth, moon, and stars), and another part of the organization is forced to deliver. The extravagant promise of the Powerpoint presentation is converted into the trail of tears of the Gantt chart.

The grandiose project was originally supposed to be feasible. There were some small technology trials that proved out the basic ideas for low-volume transaction rates and simplified user interfaces. The product was supposed to be delivered in record time because of high rates of software reuse. So what went wrong?”

The workshop participants produced a final report that focused on three sets of ideas:

- Issues involved in turning a research prototype into a quality product.
- Obstacles to collaboration between research and product groups.
- Software development techniques that help support “design for evolution”.

But we found that there are still many issues left to explore in this domain.

- Can we make effective use of tools and frameworks (such as .NET, J2EE, Eclipse) in the development of prototypes and products?
- Can we assess the risk of software failures early in the prototype-to-product transformation process? What are the most critical performance, reliability, and performance issues to address in the transition from prototype to product?
- What about documentation? We need to understand where to focus our requirements and design documentation for research prototypes. The right level of documentation might make productization efforts easier, but too little or too much documentation might lead to confusion and wasted effort.

This workshop will explore the intersection of object oriented technology, high reliability and performance requirements, large organizations, and conflicts in the software development process. Some questions we will consider include:

- Prototyping: When can a prototype be “scaled up” to production? When is it just an experiment to be thrown away?
- Reusability: How can you make an honest assessment of the potential reusability of a module or subsystem?
- Reliability and Availability: How do the reliability and availability requirements get captured and how do they become action items in the product plan?
- Frameworks: When is a framework part of the solution, and when does it become part of the problem?
- Contracting and Outsourcing: Who assumes the risk when there are problems with the product development schedule, gaps in the feature set, stability issues in the reusable components, and shortcomings in the product’s usability?
- Decision making: Is it possible to define the key issues early in the project lifecycle? What kinds of development processes and management processes are most useful for highlighting the gaps?
- Innovation and “innovation models”: Where do the new ideas come from, and how do we make sure that an “invention” turns into a “money-making innovation”?

The workshop will be an exploration of both traditional and modern approaches to creating reliable software and improving the reliability of existing software.

Organizing committee:

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Background of organizers:

Dennis Mancl has been an internal consultant on OO design within Alcatel-Lucent and AT&T, with considerable experience in assisting software project teams with design patterns, requirements modeling, and reengineering existing software.

Steven Fraser joined Cisco Research in July 2007 as Director (Engineering). From 2005 to 2007, Steven was senior staff at QUALCOMM's Learning Center, with responsibilities for technical learning. From 2002 to 2004 Steven was an independent software consultant on tech transfer and disruptive technologies. Previous to 2002, Steven held a variety of software roles at Nortel and BNR including: Process Architect, Senior Manager (Disruptive Technology and Global External Research) and Software Reuse

Program Prime. In 1994 he spent a year as a Visiting Scientist at the Software Engineering Institute (SEI). Steven holds a Doctorate in Electrical Engineering from McGill University in Montreal, Canada. Steven is a Senior Member of the IEEE and a member of the ACM. His work focuses on alleviating the "soft" challenges of developing and deploying products highly dependent on software.

Bill Opdyke has focused (throughout much of his career) on the technical and organizational issues related to transitioning advanced software technologies and software engineering techniques into product development. At Motorola, he is part of an advanced technology team focusing on home networking related middleware and on techniques for improving productivity and reducing costs of software developments. While at Bell Labs, he was technical lead on several advanced development projects where he gained a keen appreciation for the challenges in leveraging emerging technologies and in extending existing products to meet emerging market needs. He also spent several years as a faculty member at North Central College. His doctoral research at the University of Illinois, focused on object-oriented refactoring.

The three workshop organizers have run five workshops on various software engineering topics at previous OOPSLAs:

- Tackling the Discovery Costs of Evolving Software Systems (OOPSLA '02)
- Beyond Green-Field Software Development: Strategies for Reengineering and Evolution (OOPSLA '03)
- Challenges in Outsourcing and Global Development: How will your job change? (OOPSLA '04)
- Fostering Software Reliability in an Increasingly Hostile World (OOPSLA '05)
- Escaped from the Lab: Software Practices in Large Organizations (OOPSLA '06)
- No Silver Bullet – a Retrospective on Essence and Accident in Software Engineering (OOPSLA '07)

The workshop team will produce a poster from the results of the workshop, and a final report will be posted on the workshop website.

Expected number of participants: 8-15 (maximum 20)

Workshop format: A series of brief position statements and experiences followed by a roundtable discussion.

Tentative agenda--

8:30-9:30 -- short presentations of the position statements of the workshop participants

9:30-10:00 -- brainstorming session: gathering and prioritizing the main ideas and questions from the workshop participants

10:00-4:00 -- at least 3 iterative working sessions: based on the material prioritized in the brainstorming session

[working lunch will take place somewhere in this interval]

4:00-5:00 -- wrap up: creation of a poster for the OOPSLA poster session

The brainstorming and working sessions will be facilitated using a variety of techniques (NGT, Categorization, and others).

Post-workshop activities: We plan to do a report and a poster summarizing the most significant ideas shared and questions generated during the session.

Workshop website: <http://mysite.verizon.net/dennis.mancl/oopsla08/index.html>

Abstract:

This workshop will address many practical questions that arise in software product organizations large and small, focusing on the transition from an idea to a product. How do you go from a good research idea to a real-world product? Why is it so hard to address performance, reliability, and security issues when going from an initial prototype implementation into product-quality code? What have we learned from our successes and failures in converting research ideas into quality software products? Workshop participants will explore the challenges, compiling a set of the most important techniques to utilize when turning inventions into practice.