

First International Workshop on Unanticipated Software Evolution (USE)

Held in conjunction with ECOOP 2002, June 10-14th, 2002 in Malaga, Spain.

Background

Many studies of complex software systems have shown that more than 80% of the total cost of software development is devoted to software maintenance. This is mainly due to the need for software systems to evolve in the face of changing requirements. In some cases, software evolution may need to be dynamic, with changes being performed on running systems.

Despite the importance of software evolution, techniques and technologies that offer support for software evolution are far from ideal. In particular, *unanticipated* requirement changes are not well supported, although they account for most of the technical complications and related costs of evolving software.

By definition, unanticipated software evolution (USE) is not something for which we can prepare during the design of a software system. Therefore, support for such evolution in programming languages, component models and related runtime infrastructures becomes a key issue. Without it, unanticipated changes often force software engineers to perform extensive invasive modification of existing designs and code.

This one-day workshop will address the issues inherent in incremental static and dynamic evolution of object-oriented and component based systems. The main goal of the workshop is to discuss new approaches and technologies for building large-scale software systems that are evolvable when faced with unanticipated requirements. We also want to promote lively discussion between researchers proposing new approaches and practitioners reporting on their experience with the strengths and limitations of current technologies.

Topics of Interest

The workshop is intended to cover all aspects of unanticipated software evolution, from theoretical foundations to industrial experience. Position paper topics of interest include, but are not limited to:

- Formal methods, language concepts and implementation techniques for USE.
- USE support at different stages of a program's life-cycle: compile-time, load-time and run-time.
- USE support in object-oriented languages, component models and related infrastructures (JVM, EJB, JavaBeans, CORBA, DCOM, and .NET).
- USE support by prototype-based language concepts, reflection, and aspect-oriented approaches.
- Consistency, safety, integrity, constraint enforcement and dependency management issues.
- Learning from object-oriented databases: Application of techniques for schema evolution and instance adaptation for run-time USE
- Experience reports on engineering for 24x7 availability and on-line software upgrades.
- Related descriptions of hard problems from a practitioner's perspective.

Important dates

Attendance at the workshop is by invitation based on submitted position papers, and will be limited to approximately 20 people in order to facilitate lively discussion and the exchange of ideas.

Deadline for reviewed paper submissions:	April 8, 2002
Deadline for late submissions:	April 30, 2002
Notification of acceptance or rejection:	April 30, 2002
Deadline for early registration:	May 6, 2002
Deadline for final paper versions:	May 18, 2002
Workshop:	June 11, 2002

Late paper submissions will not enter the review process and will not be considered for journal publication. For late submissions, the organisers cannot guarantee a response prior to the early registration deadline.

Submission Guidelines

We seek high-quality submissions in two categories:

- Full technical papers, describing original, unpublished research (up to 10 pages).
- Work-in-progress papers, describing on-going work and interim results (up to 6 pages).

Prospective participants should forward submissions in PDF format. All articles must include the full contact information of at least one author and must be sent to Guenter.Kniesel@cs.uni-bonn.de.

Proceedings

All submitted papers will be published online on the website of the workshop at least two weeks in advance. Participants are encouraged to prepare for the workshop by reading the papers.

In addition, the best papers will be considered for a Special Issue of *Software Practice and Experience*. Selection of papers will be based on the results of the review process and on the discussions at the workshop. Authors of selected papers will be informed shortly after the workshop and will be requested to prepare final versions of their papers based on the reviewers' comments, the feedback they received at the workshop and the formatting guidelines of the publisher (John Wiley & Sons, Ltd). LaTeX styles are available at <http://www.interscience.wiley.com/jpages/0038-0644/>.

Springer-Verlag will publish the ECOOP'2002 Workshop Reader as an LNCS volume. This volume will include a report for each workshop that will be written by the organisers in collaboration with the participants of the workshop. It will provide a summary of the workshop with the major issues discussed and the conclusions of the working groups. The report should also include the current research being carried out in the area and open research directions on the workshop themes.

Organisers

Günter Kniesel, University of Bonn (contact organiser: Guenter.Kniesel@cs.uni-bonn.de)

Günter Kniesel is currently a lecturer at the Computer Science Department of the University of Bonn. His research focuses on support for unanticipated software composition in object object-oriented programming languages and component technologies. Other research interests include encapsulation, aliasing, reflection, knowledge representation and aspect-oriented software development. Inspired by the ultimate support for unanticipated software evolution in the prototype-based languages SELF, he has developed the Darwin model, which extends mainstream object-oriented languages by type-safe object-based inheritance. He leads the group working on the implementation of Lava, a corresponding extension of Java. Günter holds a Diploma in Computer Science from the University of Dortmund and a Ph.D. in Computer Science from the University of Bonn.

Pascal Costanza, University of Bonn

Pascal Costanza has an MS degree from the University of Bonn, Germany, and has been a research assistant at the University of Bonn for the last 4 years, focusing mostly on programming language constructs for unanticipated software evolution. Currently he pursues these issues in the Tailor Project. Previously, he has also been involved in the definition of the programming language Lava. He can be reached at <http://www.pascalcostanza.de>.

Mikhail Dmitriev, Sun Microsystems

Mikhail Dmitriev is currently a software engineer in Sun Microsystems Laboratories. His research interests include various aspects of safe and scalable evolution of computer applications. During his PhD work, done in close collaboration with Sun Microsystems, he was developing persistent object evolution infrastructure and tools for the PJama orthogonally persistent system. He then started to work on the HotSwap project at Sun Labs, that investigates safe runtime evolution of Java applications. He has also implemented smart recompilation technology and tool for Java ("Javamake"), and is contributing to the ongoing work on Java profiling based on dynamic bytecode instrumentation. Mikhail holds a Diploma in Computer Science from Cambridge University and a Ph.D. in Computer Science from the University of Glasgow.

Program Committee

Pascal Costanza, University of Bonn, Germany
Martine Devos, Avaya Labs, USA
Mikhail Dmitriev, Sun Microsystems, USA
Babak Esfandiari, Carleton University, Canada
Peter Grogono, Concordia University, Canada
Michael Hicks, Cornell University, USA
Günter Kiesel, University of Bonn, Germany
Tom Mens, Free University of Brussels, Belgium
Bernard Pagurek, Carleton University, Canada
Frantisek Plasil, Charles University Prague, Czech Republik
Vaclav Rajlich, Wayne State University, USA
Clemens Szyperski, Microsoft Corporation, USA
Dave Thomas, Bedarra Corporation, Canada
Kris De Volder, University of British Columbia, Canada

Workshop Format

In keeping with the spirit and format of a workshop, USE will have a highly discursive nature, with different theme-based discussion tracks. Authors are encouraged to bring up to three slides which they will be able to present. We plan to allow slots of 5 minutes for each paper presentation. There will be plenty of time for discussion in small focused working groups. Further details will be made available in May, after the deadline for notification of acceptance or rejection.

Related Events

OOPSLA 2001 Workshop on Engineering Complex Object-Oriented Systems for Evolution
(<http://www.dsg.cs.tcd.ie/ecoose/oopsla2001/papers.shtml>).

ECOOP2002 Workshop on Benchmarks for Empirical Studies in Object-Oriented Software Evolution
(<http://prog.vub.ac.be/ooae/ECOOP2002/ws05-cfp.html>)

Workshop Website

This call and additional information can be found at the official workshop website, <http://joint.org/use2002/>. In case of its temporary unavailability there is a mirror at <http://www.cs.uni-bonn.de/~gk/use2002/>.