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System Analysis and Modeling

4th International SDL and MSC Workshop, SAM 2004
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Revised Selected Papers



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Preface

The SDL and MSC (SAM) workshop, held every two years, provides an open discussion arena on topics related to the modelling and analysis of reactive systems, distributed systems, and real-time systems (e.g., telecommunications, automotive, aerospace, and Web-based applications). The SAM workshop is a place for intensive discussions enabling the unfolding of ideas for the future development and application of SDL and MSC, and of related languages: ASN.1, eODL, TTCN, UML, and URN.

The fourth instance of this workshop was held at the University of Ottawa, Canada, from June 1 to June 4, 2004 (<http://www.site.uottawa.ca/sam04/>). It was co-organized by the University of Ottawa, the SDL Forum Society, and the International Telecommunication Union (ITU-T). SAM 2004 was also sponsored by SOLINET, SAFIRE-SDL, and Telelogic AB. The workshop welcomed 60 participants from 10 different countries, including SDL Forum members, tool vendors, standardizers, industrial users, and researchers.

In 2004, the program was composed of 21 papers, two panel sessions, one tutorial, several posters, and the third edition of the SDL design contest. The papers were selected by the Program Committee from 46 submissions. After postworkshop revisions, a second round of review led to the selection of 19 papers for publication in this volume of Lecture Notes in Computer Science.

Since the theme proposed for 2004 was *Security Analysis and Modelling*, the workshop started with a full-day tutorial on black-box security protocols, given by Sjouke Mauw and Cas Cremers. This tutorial introduced the basics of security protocols (which are “three-line programs that people still manage to get wrong”) and ways of preventing many types of attacks based on a security model, verification, and formal modelling and analysis. Many of the models were expressed as message sequence charts annotated with security properties.

The invited talk on Model-Driven Software Engineering, given by Bran Selic (Distinguished Engineer, IBM Rational Software), emphasized that in the hype surrounding MDA, *platform independence* does not mean *platform ignorance*. Bran noted that engineering is “design with constraints,” and the models need to incorporate those constraints. The characteristics of the underlying platform or machinery need to be taken into consideration early in the design process to address quality-of-service (QoS) issues. The challenge is to introduce technology-independent specifications of required and offered QoS in our models.

These proceedings contain 19 papers, presented in six different sessions:

1. SDL and eODL
2. Evolution of Languages
3. Requirements and MSC
4. Security
5. SDL and Modelling
6. Experience

Some of these contributions are likely to influence the evolution of ITU-T languages. In particular:

- Rick Reed presents his contribution on the ASN.1 data encoding for SDL in Z.104.
- Markus Scheidgen presents a metamodel for SDL-2000 in the context of metamodelling ITU-T languages. The idea of metamodels for ITU-T languages gains more and more support, especially with the current trend related to the development of UML 2.0 profiles for these languages, starting with SDL (i.e., Z.109).
- Øystein Haugen presents a comparison between UML 2.0 interactions and MSC-2000, where he discusses the many commonalities between the two languages, as well as aspects where one language is more advanced than the other. Three scenarios are envisioned by Haugen: (1) MSC/SDL and UML both prevail; (2) UML fails; (3) UML succeeds more.

During the workshop, the most active and heated discussions focused on the future of SDL, especially with these three presentations, followed by a panel session chaired by Alan Williams:

- Edel Sherratt presented new potential areas of application for SDL. She emphasized the importance of new trends such as ubiquitous and pervasive computing, ad hoc networking, and grid computing, and she discussed the influence of UML 2.0.
- William Skelton presented SIMPL-T (SDL intended for management and planning of tests), a simple test language for SDL specifications, where he argued for the use of SDL with minor extensions as a test language to test SDL models. These extensions include the organization and management of tests, the checking of responses (e.g., with “Input Via” and matching mechanisms), and the assigning and handling of verdicts.
- Andreas Prinz reported on the activities and suggestions of the SDL Task Force on the “simplest useful enhanced SDL-subset.” The need for such a subset and its nature led to much discussion, which is still continuing on the SDL Forum and SDL Task Force mailing lists.

The second panel session, chaired by Ostap Monkewich, focused on Security Analysis and Modelling. Together with the three papers presented in the Security session and included in this volume, several challenges and opportunities regarding security modelling and ITU-T languages were presented, especially in the context of security vulnerabilities in the IP world.

Again this year, SOLINET/SAFIRE-SDL sponsored an SDL design contest, this time using an electronic access control system as the problem description (http://www.safire-sdl.com/sam_04.htm). Three contestants presented their solutions, and the workshop participants voted for the best one. For the second year in a row, Alkis Yiannakoulis (National Technical University of Athens) won the contest. Christian Webel (University of Kaiserslautern) finished second, followed by Keith Moss (Open University, UK) in third place.

Overall, the 2004 edition of SAM was a success, thanks to many people involved in this event, including the Local Organization Committee, Program Committee members, reviewers, speakers, invited speaker (Bran Selic), session and panel chairs, panellists, tutorial speakers, and contest participants and organizers. We hope you will enjoy our selection of papers. We are especially grateful to Jacques Sincennes for his help and technical support, and to Richard van de Stadt for making his CyberChair software (<http://www.cyberchair.org>) available to us.

The workshop presentations are also available online at the following Web site: <http://www.site.uottawa.ca/sam04/>.

November 2004

Daniel Amyot and Alan Williams

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