Rick Kazman
Dan Port (Eds.)

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COTS-Based Software Systems

Third International Conference, ICCBSS 2004
Redondo Beach, CA, USA, February 2004
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Volume Editors

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Foreword

In the short space of about a decade, Commercial-off-the-Shelf (COTS) software has evolved from a relatively minor aspect of software development; a top-management-endorsed silver bullet solution for software development; a disruptive technology requiring people and organizations to extensively rethink their approaches to software development; to an increasingly well-understood software phenomenon for which effective solutions are being developed.

Part of this understanding has been to recognize that different COTS application sectors can be at different stages of this evolution. Some sectors are just beginning to become COTS-intensive. Some have evolved COTS solutions that are very well matched to their problem domain. Others, including most large-scale applications, still involve their developers in rethinking how to adapt their traditional software architectures, processes, management practices, and personnel skills to accommodate economically attractive but complex combinations of powerful but incompletely compatible and independently evolving COTS products.

The series of International Conferences on COTS-Based Software Systems (ICCBSS) was established as a continuing forum for bringing together CBSS developers, suppliers, and researchers to summarize and discuss progress toward understanding and resolving CBSS problems. This year's conference theme, "Matching Solutions to Problems," reflected this objective. We were fortunate to have three outstanding keynote speakers, David Carr, Tricia Oberndorf, and Douglas Schmidt, who have contributed significantly both in analyzing CBSS problems and developing better CBSS solutions.

The contributed papers and summaries of workshops, panels, and tutorials in these proceedings give a good understanding of the nature and directions of evolution of CBSS problems and solutions. As has been my experience with previous ICCBSS proceedings volumes, I believe that you will find lasting value in the content of the proceedings.

I would like to express a special note of thanks to all of the members of the ICCBSS 2004 organizing committee, program committee, and individual committees listed in the proceedings. Their capable and dedicated volunteer efforts are what continues to make the ICCBSS series a timely and useful experience and contribution toward improved CBSS practices. I would also like to thank the Northrop Grumman Corporation for its sponsorship of ICCBSS 2004, and the overall sponsoring organizations of the ICCBSS series: the Canadian National Research Council, the CMU Software Engineering Institute, the European Software Institute, and the USC Center for Software Engineering.

January 2004 Barry Boehm

Preface

Welcome to the proceedings of the 3rd *International Conference of COTS-Based Software Systems*. The conference is still young, but it is vital and growing fast. This year there were a total of 57 submissions on all aspects of COTS, with about 60% of these coming from the United States and the remainder from Europe and Asia. Equally encouraging, we had about equal numbers of submissions coming from academia and industry. This shows that ICCBSS is hitting our target audience-both practitioners and researchers interested in the effective use of COTS.

The specific program statistics are as follows:

4 tutorials submitted
3 tutorials accepted

4 panels submitted
3 panels accepted

10 experience presentations submitted
8 experience presentations accepted

39 refereed papers submitted
17 refereed papers accepted

2 invited workshops

We were uniformly impressed with the high quality and broad scope of these submissions. There were about an equal number of technically focused and managerially oriented submissions whose topics generally fell into three tracks: COTS Product Evaluation and Selection, COTS-Based System Definition and Development, and COTS-Based System Evolution and Management.

The superb quality of the submissions and the invited workshops continues to indicate the importance and interest in COTS-Based system development and issues. With this trend, ICCBSS 2005 will prove to be even more exciting!

Dan Port, Rick Kazman

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Using eCots Portal for Sharing Information about Software Products on the Internet and in Corporate Intranets

Jean-Christophe Mielnik[1], Vincent Bouthors[2], Stéphane Laurière[3], and Bernard Lang[3]

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The growing use of COTS software components instead of in-house developments brings non-negligible loss of control of the systems in which they are used, and increases dependency on COTS components' producers, particularly critical in the case of obsolescence. This loss of control and dependency can be compensated only by extremely reliable, accurate and continuously updated knowledge of the software component market and its trends. It is a matter of factual data, not subjected to interpretation, on both the actors (producers, distributors and consulting companies) and the products in this market. These data must be processed on technical, commercial, economical, financial, and legal dimensions. Most industrial groups now try to organize the collection of COTS information to make it available in-house, but the effort is considerable due to the size and variability of the software component market and the difficulty in collecting and updating information. This assessment and selection phase is consequently a hard task for enterprises, particularly for SMEs, which cannot invest enough time or money into COTS management to gain qualified information. Although specialized companies dedicated to technological analysis and market monitoring can bring help in the process of collecting software descriptions, the analysis they provide are often expensive and short- lived. In addition, this information market has not developed a standard for COTS description. This tutorial will describe eCots, a platform that gathers on a common mutualized portal the raw data on COTS products that is held both by producers and by the very large community of COTS users.

R. Kazman and D. Port (Eds.): ICCBSS 2004, LNCS 2959, p. 1, 2004

Testing Component-Based Software – Issues, Challenges, and Solutions

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Many regard widespread development and reuse of software components as one of the next biggest phenomena for software. However, widespread reuse of a software component with poor quality may lead to disasters. Improper reuse of software components of good quality may also be disastrous. Testing and quality assurance is therefore critical for both software components and component-based software systems. This tutorial provides an in-depth look at the technical issues, challenges, managerial aspects, and needs in testing of components and systems. Moreover, this tutorial reports on the recent advances and research efforts in developing new solutions to solve those problems and meet those needs, from the perspectives of component-based software engineering. The tutorial will discuss the state-of-the-art practice, issues, and challenges, new solutions and research efforts in third-party component testing, component-based program validation, and test automation. The targeted audience includes technical managers, software testing engineers, quality assurance people, and development engineers who are working on component-based software projects. The tutorial will be useful for professionals, researchers, and students interested in understanding the general concepts and methods in component testing and component-based software validation. This tutorial assumes that participants have a general understanding of software engineering and software testing methods, and have some working experience in software development and validation.

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