Lecture Notes in Computer Science

3083

Commenced Publication in 1973
Founding and Former Series Editors:
Gerhard Goos, Juris Hartmanis, and Jan van Leeuwen

Editorial Board

Takeo Kanade

Carnegie Mellon University, Pittsburgh, PA, USA

Josef Kittler

University of Surrey, Guildford, UK

Jon M. Kleinberg

Cornell University, Ithaca, NY, USA

Friedemann Mattern

ETH Zurich, Switzerland

John C. Mitchell

Stanford University, CA, USA

Oscar Nierstrasz

University of Bern, Switzerland

C. Pandu Rangan

Indian Institute of Technology, Madras, India

Bernhard Steffen

University of Dortmund, Germany

Madhu Sudan

Massachusetts Institute of Technology, MA, USA

Demetri Terzopoulos

New York University, NY, USA

Doug Tygar

University of California, Berkeley, CA, USA

Moshe Y. Vardi

Rice University, Houston, TX, USA

Gerhard Weikum

Max-Planck Institute of Computer Science, Saarbruecken, Germany

Springer Berlin

Berlin Heidelberg New York Hong Kong London Milan Paris Tokyo Wolfgang Emmerich Alexander L. Wolf (Eds.)

Component Deployment

Second International Working Conference, CD 2004 Edinburgh, UK, May 20-21, 2004 Proceedings



Volume Editors

Wolfgang Emmerich University College London Dept. of Computer Science Gower Street, London WC1E 6BT, UK E-mail: w.emmerich@cs.ucl.ac.uk

Alexander L. Wolf University of Colorado Department of Computer Science Boulder, Colorado, 80309-430 USA E-mail: alw@cs.colorado.edu

Library of Congress Control Number: 2004105536

CR Subject Classification (1998): D.2, F.3, D.1, D.3, D.4

ISSN 0302-9743 ISBN 3-540-22059-3 Springer-Verlag Berlin Heidelberg New York

This work is subject to copyright. All rights are reserved, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, re-use of illustrations, recitation, broadcasting, reproduction on microfilms or in any other way, and storage in data banks. Duplication of this publication or parts thereof is permitted only under the provisions of the German Copyright Law of September 9, 1965, in its current version, and permission for use must always be obtained from Springer-Verlag. Violations are liable to prosecution under the German Copyright Law.

Springer-Verlag is a part of Springer Science+Business Media springeronline.com

© Springer-Verlag Berlin Heidelberg 2004 Printed in Germany

Typesetting: Camera-ready by author, data conversion by Boller Mediendesign Printed on acid-free paper SPIN: 11009528 06/3142 5 4 3 2 1 0

Preface

This volume of the Lecture Notes in Computer Science series contains the proceedings of the second Working Conference on Component Deployment, which took place May 20–21, 2004, at the e-Science Institute in Edinburgh, Scotland, as a collocated event of the International Conference on Software Engineering.

Component deployment addresses what needs to be done *after* a component has been developed. Component deployment includes activities such as component customization, configuration, integration, activation, de-activation and decommissioning. The emerging research community that investigates component deployment concerns itself with the principles, methods and tools for deployment activities. The community held its first working conference in Berlin, Germany, in June 2002. The proceedings were published by Springer-Verlag as volume 2370 of the Lecture Notes in Computer Science series.

The program of this year's conference consisted of an invited talk and 16 technical paper presentations. The invited talk was given by Patrick Goldsack of Hewlett Packard Research Laboratories Bristol, UK. He presented the Smart-Frog component deployment framework that HP released as Open Source. The technical papers were carefully selected from a total of 34 submitted papers. Each paper was thoroughly peer reviewed by at least three members of the program committee and consensus on acceptance was achieved by means of an electronic PC meeting.

The conference and these proceedings would not have been possible without the help of a large number of people. Anthony Finkelstein, in his role as General Chair of ICSE, simplified our task considerably by arranging our use of the CyberChair electronic submission and reviewing service, as well as handling publicity and registration. We are indebted to ACM SIGSOFT and the UK e-Science Programme for generously providing support for the conference, and to Malcolm Atkinson and Dave Berry at the e-Science Institute for hosting CD 2004. Particular thanks go to Gill Mandy for handling the local arrangements. Richard van der Stadt of Borbala was always available and responded incredibly quickly whenever we needed him and, as a result, he eased the paper submission and review process considerably. Finally, we thank the members of the program committee for their hard work and careful reviews.

March 2004

Wolfgang Emmerich and Alexander L. Wolf

Program Committee

Uwe Assmann, Linkoeping University, Sweden
Judy Bishop, University of Pretoria, South Africa
Wolfgang Emmerich (Co-chair), University College London, UK
Volker Gruhn, University of Leipzig, Germany
Richard Hall, IMAG LSR, Grenoble, France
Stephan Herrmann, TU Berlin, Germany
Alan Kaplan, Panasonic Research, USA
Jeff Magee, Imperial College London, UK
Neno Medvidovic, University of Southern California, USA
Rick Schlichting, ATT Research, USA
Santosh Shrivastava, Newcastle University, UK
Clemens Szyperski, Microsoft Research, USA
Jan Vitek, Purdue University, USA
Kurt Wallnau, SEI, Carnegie Mellon University, USA
Alexander Wolf (Co-chair), University of Colorado, Boulder, USA

Sponsoring Institutions

ACM Special Interest Group on Software Engineering (SIGSOFT) UK e-Science Programme

Table of Contents

A Tailorable Environment for Assessing the Quality of Deployment Architectures in Highly Distributed Settings	1
(University of Southern California, USA) Customizing Component-Based Architectures by Contract	18
Deploying CORBA Components on a Computational Grid: General Principles and Early Experiments Using the Globus Toolkit	35
Asynchronous, Hierarchical, and Scalable Deployment of Component-Based Applications	50
Dynamic Deployment of IIOP-Enabled Components in the JBoss Server . Francisco Reverbel (University of São Paulo, Brazil), Bill Burke, and Marc Fleury (JBoss Inc, USA)	65
A Policy-Driven Class Loader to Support Deployment in Extensible Frameworks	81
MagicBeans: a Platform for Deploying Plugin Components	97
Dynamic Deployment of Executing and Simulating Software Components	113
Towards a Dynamic Resource Contractualisation for Software Components	129
Keeping Control of Reusable Components	144

X Table of Contents

Author Index	249
Deploying Agents with the CORBA Component Model	234
A Flexible and Secure Deployment Framework for Distributed Applications	219
On the Performance of SOAP in a Non-trivial Peer-to-Peer Experiment Tom Van Cutsem, Stijn Mostinckx, Wolfgang De Meuter, Jessie Dedecker, and Theo D'Hondt (Vrije Universiteit Brussels, Belgium)	205
JPloy: User-Centric Deployment Support in a Component Platform Chris Lüer and André van der Hoek (University of California, Irvine, USA)	190
Secure Deployment of Components	175
Eureka – A Resource Discovery Service for Component Deployment Karl Pauls (FU Berlin, Germany) and Richard S. Hall (Laboratoire LSR-IMAG Grenoble, France)	159