

Robert Meersman  
Zahir Tari et al. (Eds.)

LNCS 3290

# On the Move to Meaningful Internet Systems 2004: CoopIS, DOA, and ODBASE

OTM Confederated International Conferences  
CoopIS, DOA, and ODBASE 2004  
Agia Napa, Cyprus, October 2004  
Proceedings, Part I

**1** Part I



**DOA**



 Springer

TP311.133.1-53  
088  
2004-2  
V.1  
Robert Meersman Zahir Tari Wil van der Aalst  
Christoph Bussler Avigdor Gal Vinny Cahill  
Steve Vinoski Werner Vogels Tiziana Catarci  
Katia Sycara (Eds.)

# On the Move to Meaningful Internet Systems 2004: CoopIS, DOA, and ODBASE

OTM Confederated International Conferences  
CoopIS, DOA, and ODBASE 2004  
Agia Napa, Cyprus, October 25-29, 2004  
Proceedings, Part I



E200404750



Springer

## Volume Editors

Robert Meersman  
Vrije Universiteit Brussel, STAR Lab  
Pleinlaan 2, Bldg. G/10, 1050 Brussels, Belgium  
E-mail: meersman@vub.ac.be

Zahir Tari  
RMIT University, School of Computer Science and IT  
City Campus, GPO Box 2476 V, Melbourne, Victoria 3001, Australia  
E-mail: zahirt@cs.rmit.edu.au

Library of Congress Control Number: 2004113801

CR Subject Classification (1998): H.2, H.3, H.4, C.2, H.5, I.2, D.2.12, K.4

ISSN 0302-9743

ISBN 3-540-23663-5 Springer 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. Violations are liable to prosecution under the German Copyright Law.

Springer is a part of Springer Science+Business Media

[springeronline.com](http://springeronline.com)

© Springer-Verlag Berlin Heidelberg 2004  
Printed in Germany

Typesetting: Camera-ready by author, data conversion by PTP-Berlin, Protago-TeX-Production GmbH  
Printed on acid-free paper SPIN: 11341079 06/3142 5 4 3 2 1 0

## **Volume Editors**

Robert Meersman  
Zahir Tari

## **CoopIS 2004**

Wil van der Aalst  
Christoph Bussler  
Avigdor Gal

## **DOA 2004**

Vinny Cahill  
Steve Vinoski  
Werner Vogels

## **ODBASE 2004**

Tiziana Catarci  
Katia Sycara

## OTM 2004 General Co-chairs' Message

The General Chairs of OnTheMove 2004, Larnaca, Cyprus, are once more proud to observe that the conference series we started in Irvine, California in 2002, and continued in Catania, Sicily last year, has turned out to be a concept that attracts a representative selection of today's research in distributed, heterogeneous yet collaborative systems, of which the Internet and the WWW are its prime examples.

Indeed, as such large, complex and networked intelligent information systems become the focus and norm for computing, it is clear that one needs to address and discuss in a single forum the implied software and system issues as well as methodological, theoretical and application issues. This is why the OnTheMove (OTM) Federated Conferences series covers an increasingly wide yet closely knit range of topics such as data and Web semantics, distributed objects, Web services, databases, workflows, cooperation, ubiquity, interoperability, and mobility. OnTheMove wants to be a primary scientific forum where these aspects for the development of internet- and intranet-based systems in organizations and for e-business are addressed in a quality-controlled fundamental way. This third, 2004 edition of the OTM Federated Conferences event therefore again provided an opportunity for researchers and practitioners to understand and publish these developments within their respective as well as within their broader contexts.

OTM first of all co-locates three related, complementary and successful main conference series: DOA (Distributed Objects and Applications), covering the relevant infrastructure-enabling technologies, ODBASE (Ontologies, DataBases and Applications of SEmantics) covering Web semantics, XML databases and ontologies, and CoopIS (Cooperative Information Systems) covering the application of these technologies in an enterprise context through, for example, workflow systems and knowledge management. Each of these three conferences treats its specific topics within a framework of (a) theory, (b) conceptual design and development, and (c) applications, in particular case studies and industrial solutions.

Following and expanding the example set in 2003, we solicited and selected quality workshop proposals to complement the more "archival" nature of the main conferences, with research results in a number of selected and more "avant garde" areas related to the general topic of distributed computing. For instance, the so-called Semantic Web has given rise to several novel research areas combining linguistics, information systems technology, and artificial intelligence, such as the modeling of (legal) regulatory systems and the ubiquitous nature of their usage. We were glad to see that in 2004 several of the Catania workshops re-emerged with a second edition (notably WoRM and JTRES), and that four other workshops could be hosted and successfully organized by their respective proposers: GADA, MOIS, WOSE, and INTEROP. We trust that their audiences mutually productively and happily mingled with those of the main conferences.

A special mention for 2004 is in order for the new Doctoral Symposium Workshop where three young postdoc researchers organized an original setup and formula to bring PhD students together and allow them to submit their research proposals for selection. A limited number of the submissions and their approaches were independently evaluated by a panel of senior experts at the conference, and presented by the students in front of a wider audience. These students also got free access to all other parts of the OTM program, and only paid a heavily discounted fee for the Doctoral Symposium itself. (In fact their attendance was largely sponsored by the other participants!) If evaluated as successful, it is the intention of the General Chairs to expand this model in future editions of the OTM conferences and so draw in an audience of young researchers to the OnTheMove forum.

All three main conferences and the associated workshops share the distributed aspects of modern computing systems, and the resulting application-pull created by the Internet and the so-called Semantic Web. For DOA 2004, the primary emphasis stayed on the distributed object infrastructure; for ODBASE 2004, it was the knowledge bases and methods required for enabling the use of formal semantics; and for CoopIS 2004 the main topic was the interaction of such technologies and methods with management issues, such as occurs in networked organizations. These subject areas naturally overlap and many submissions in fact also treat envisaged mutual impacts among them. As for the earlier editions, the organizers wanted to stimulate this cross-pollination with a shared program of famous keynote speakers: this year we got no less than Roberto Cencioni of the EC, Umesh Dayal of HP Labs, Hans Gellersen of Lancaster University, and Nicola Guarino of the Italian CNR! As before we encouraged multiple-event attendance by providing authors with free access to other conferences or workshops of their choice.

We received a total of 350 submissions for the three conferences and approximately 170 in total for the workshops. Not only can we therefore again claim success in attracting a representative volume of scientific papers, but such a harvest allowed the program committees of course to compose a high-quality cross-section of worldwide research in the areas covered. In spite of the large number of submissions, the Program Chairs of each of the three main conferences decided to accept only approximately the same number of papers for presentation and publication as in 2002 and 2003 (i.e., an average of 1 paper out of 4 submitted, not counting posters). For the workshops, the acceptance rate varied but was stricter than before, about 1 in 2, to 1 in 3 for GADA and WoRM. Also, for this reason, we decided to separate the proceedings into two books with their own titles, with the main proceedings in two volumes and the workshop proceedings in a separate, third volume, and we are grateful to Springer for their suggestions and collaboration in producing these books. The reviewing process by the respective program committees as usual was performed very professionally and each paper in the main conferences was reviewed by at least three referees. It may be worthwhile to emphasize that it is an explicit OnTheMove policy that all conference program committees and chairs make their selections completely



autonomously from the OTM organization. Continuing an equally nice (but admittedly costly) tradition, the OnTheMove Federated Event organizers decided again to make ALL (sizeable!) proceedings available to ALL participants of conferences and workshops, independent of their registrations.

The General Chairs really are especially grateful to all the many people who were directly or indirectly involved in the setup of these federated conferences and in doing so made them a success. Few people realize what a large number of people have to be involved, and what a huge amount of work, and, yes, risk organizing an event like OTM entails. In particular we therefore thank our eight main conference PC co-chairs (DOA 2004: Vinny Cahill, Steve Vinoski, and Werner Vogels; ODBASE 2004: Tiziana Catarci and Katia Sycara; CoopIS 2004: Wil van der Aalst, Christoph Bussler, and Avigdor Gal) and our 15 workshop PC co-chairs (Angelo Corsaro, Corrado Santoro, Mustafa Jarrar, Aldo Gangemi, Klaus Turowski, Antonia Albani [2x], Alexios Palinginis, Peter Spyns [2x], Erik Duval, Pilar Herrero, Maria S. Perez, Monica Scannapieco, Paola Velardi, Herve Panetto, Martin Zelm) who, together with their many PC members, did a superb and professional job in selecting the best papers from the large harvest of submissions. We also thank our Publicity Chair (Laura Bright) and Publication Chair (Kwong Yuen Lai), and of course our overall Workshops Chair (Angelo Corsaro).

We do hope that the results of this federated scientific event contribute to your research and your place in the scientific network. We look forward to seeing you at next year's edition!

August 2004

Robert Meersman, Vrije Universiteit Brussel, Belgium  
Zahir Tari, RMIT University, Australia

# Organization Committee

The OTM (On The Move) 2004 Federated Conferences, which involved CoopIS (Cooperative Information Systems), DOA (Distributed Objects and Applications) and ODBASE (Ontologies, Databases and Applications of Semantics), were proudly supported by RMIT University (School of Computer Science and Information Technology) and Vrije Universiteit Brussel (Department of Computer Science).

## Executive Committee

OTM 2004 General Co-chairs	Robert Meersman (Vrije Universiteit Brussel, Belgium) and Zahir Tari (RMIT University, Australia)
CoopIS 2004 PC Co-chairs	Wil van der Aalst (Eindhoven University of Technology, The Netherlands), Christoph Bussler (Digital Enterprise Research Institute, National University of Ireland, Ireland) and Avigdor Gal (Technion – Israel Institute of Technology, Israel)
DOA 2004 PC Co-chairs	Vinny Cahill (Trinity College Dublin, Ireland), Steve Vinoski (IONA Technologies, USA) and Werner Vogels (Cornell University, Ithaca, NY, USA)
ODBASE 2004 PC Co-chairs	Tiziana Catarci (Università di Roma “La Sapienza”, Italy) and Katia Sycara (Carnegie Mellon University, USA)
Publication Chair	Kwong Yuen Lai (RMIT University, Australia)
Organizing Chair	Skevos Evripidou (University of Cyprus, Cyprus)
Publicity Chair	Laura Bright (Oregon Graduate Institute, Oregon, USA)

## CoopIS 2004 Program Committee

Dave Abel	Athman Bouguettaya
Lefteris Angelis	Barbara Carminati
Naveen Ashish	Fabio Casati
Alistair Barros	Barbara Catania
Boualem Benatallah	Tiziana Catarci
Salima Benbernou	Bin Cui
Klemens Boehm	Umesh Dayal



## XII Organization

Alex Delis  
Jorg Desel  
Drew Devereux  
Susanna Donatelli  
Marie-Christine Fauvet  
Elena Ferrari  
Timothy Finin  
Stephane Gancarski  
Mohand-Said Hacid  
Manfred Hauswirth  
Geert-Jan Houben  
Michael Huhns  
Latifur Khan  
Roger (Buzz) King  
Akhil Kumar  
Steven Laufmann  
Qing Li  
Fabien De Marchi  
Maristella Matera  
Massimo Mecella  
Claudia Medeiros  
Michael zur Muehlen  
Andreas Oberweis  
Beng Chin Ooi

Barbara Pernici  
Jean-Marc Petit  
Manfred Reichert  
Tore Risch  
Kai-Uwe Sattler  
Monica Scannapieco  
Ralf Schenkel  
Cyrus Shahabi  
Antonio Si  
Peter Spyns  
Nicolas Spyrtos  
Farouk Toumani  
Susan Urban  
Athena Vakali  
Mathias Weske  
Kyu-Young Whang  
Mike Wooldridge  
Jian Yang  
Kokou Yetongnon  
Ming Yung  
Arkady Zaslavsky  
Gang Zhao  
Leon Zhao  
Roger Zimmermann

## ODBASE 2004 Program Committee

Karl Aberer  
Sonia Bergamaschi  
Alex Borgida  
Chris Bussler  
Mike Champion  
Isabel Cruz  
Mike Dean  
Stefan Decker  
Jerome Euzenat  
Skevos Evripidou  
Tim Finin  
Avigdor Gal  
Carole Goble  
Nicola Guarino  
Mohamed-Said Hacid  
Ian Horrocks

Arantza Illaramendi  
Vipul Kashyap  
Michael Kifer  
Roger (Buzz) King  
Wolfgang Klas  
Harumi Kuno  
Yannis Labrou  
Maurizio Lenzerini  
Murali Mani  
Leo Mark  
David Martin  
Michele Missikoff  
Pavlos Moraitis  
Maria Orlowska  
Massimo Paolucci  
Bijan Parsia

Adam Pease  
 Shazia Sadiq  
 Stefano Spaccapietra  
 Naveen Srinivasan  
 Steffen Staab  
 Rudi Studer

Sergio Tessaris  
 Paola Velardi  
 Guido Vetere  
 Kevin Wilkinson  
 Stuart Williams  
 Guizhen Yang

## DOA 2004 Program Committee

Gul Agha  
 Matthias Anlauff  
 Egidio Astesiano  
 Ozalp Babaoglu  
 Sean Baker  
 Roberto Baldoni  
 Guruduth Banavar  
 Judith Bishop  
 Gordon Blair  
 Michel Chaudron  
 Shing-Chi Cheung  
 Geoff Coulson  
 Francisco Paco Curbera  
 Wolfgang Emmerich  
 Patrick Eugster  
 Pascal Felber  
 Mohand-Said Hacid  
 Doug Lea  
 Hong Va Leong  
 Peter Loehr  
 Joe Loyall

Frank Manola  
 Karim Mazouni  
 Keith Moore  
 Peter Pietzuch  
 Rajendra Raj  
 Andry Rakotonirainy  
 Timothy Roscoe  
 Douglas Schmidt  
 Heinz-W. Schmidt  
 Richard Soley  
 Jean-Bernard Stefani  
 Clemens Szyperski  
 Stefan Tai  
 Guatam Thaker  
 Nalini Venkatasubramanian  
 Norbert Voelker  
 Yi-Min Wang  
 Guijun Wang  
 Andrew Watson  
 Doug Wells  
 Albert Zomaya

*Commenced Publication in 1973*

Founding and Former Series Editors:

Gerhard Goos, Juris Hartmanis, and Jan van Leeuwen

## Editorial Board

David Hutchison

*Lancaster University, UK*

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*

Moni Naor

*Weizmann Institute of Science, Rehovot, Israel*

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*

# Lecture Notes in Computer Science

For information about Vols. 1–3192

please contact your bookseller or Springer

- Vol. 3305: P.M.A. Sloot, B. Chopard, A.G. Hoekstra (Eds.), *Cellular Automata*. XV, 883 pages. 2004.
- Vol. 3293: C.-H. Chi, M. van Steen, C. Wills (Eds.), *Web Content Caching and Distribution*. IX, 283 pages. 2004.
- Vol. 3292: R. Meersman, Z. Tari, A. Corsaro et al. (Eds.), *On the Move to Meaningful Internet Systems 2004: OTM 2004 Workshops*. XXIII, 885 pages. 2004.
- Vol. 3291: R. Meersman, Z. Tari et al. (Eds.), *On the Move to Meaningful Internet Systems 2004: CoopIS, DOA, and ODBASE. Part II*. XXV, 824 pages. 2004.
- Vol. 3290: R. Meersman, Z. Tari et al. (Eds.), *On the Move to Meaningful Internet Systems 2004: CoopIS, DOA, and ODBASE. Part I*. XXV, 823 pages. 2004.
- Vol. 3287: A. Sanfeliu, J.F.M. Trinidad, J.A. Carrasco Ochoa (Eds.), *Progress in Pattern Recognition, Image Analysis and Applications*. XVII, 703 pages. 2004.
- Vol. 3286: G. Karsai, E. Visser (Eds.), *Generative Programming and Component Engineering*. XIII, 491 pages. 2004.
- Vol. 3284: A. Karmouch, L. Korba, E.R.M. Madeira (Eds.), *Mobility Aware Technologies and Applications*. XII, 382 pages. 2004.
- Vol. 3280: C. Aykanat, T. Dayar, İ. Körpeoğlu (Eds.), *Computer and Information Sciences - ISCIS 2004*. XVIII, 1009 pages. 2004.
- Vol. 3274: R. Guerraoui (Ed.), *Distributed Computing*. XIII, 465 pages. 2004.
- Vol. 3273: T. Baar, A. Strohmeier, A. Moreira, S.J. Mellor (Eds.), *<<UML>> 2004 - The Unified Modelling Language*. XIII, 454 pages. 2004.
- Vol. 3271: J. Vicente, D. Hutchison (Eds.), *Management of Multimedia Networks and Services*. XIII, 335 pages. 2004.
- Vol. 3270: M. Jeckle, R. Kowalczyk, P. Braun (Eds.), *Grid Services Engineering and Management*. X, 165 pages. 2004.
- Vol. 3269: J. López, S. Qing, E. Okamoto (Eds.), *Information and Communications Security*. XI, 564 pages. 2004.
- Vol. 3266: J. Solé-Pareta, M. Smirnov, P.V. Mieghem, J. Domingo-Pascual, E. Monteiro, P. Reichl, B. Stiller, R.J. Gibbens (Eds.), *Quality of Service in the Emerging Networking Panorama*. XVI, 390 pages. 2004.
- Vol. 3265: R.E. Frederking, K.B. Taylor (Eds.), *Machine Translation: From Real Users to Research*. XI, 392 pages. 2004. (Subseries LNAI).
- Vol. 3264: G. Paliouras, Y. Sakakibara (Eds.), *Grammatical Inference: Algorithms and Applications*. XI, 291 pages. 2004. (Subseries LNAI).
- Vol. 3263: M. Weske, P. Liggesmeyer (Eds.), *Object-Oriented and Internet-Based Technologies*. XII, 239 pages. 2004.
- Vol. 3262: M.M. Freire, P. Chemoui, P. Lorenz, A. Gravey (Eds.), *Universal Multiservice Networks*. XIII, 556 pages. 2004.
- Vol. 3261: T. Yakhno (Ed.), *Advances in Information Systems*. XIV, 617 pages. 2004.
- Vol. 3260: I.G.M.M. Niemegeers, S.H. de Groot (Eds.), *Personal Wireless Communications*. XIV, 478 pages. 2004.
- Vol. 3258: M. Wallace (Ed.), *Principles and Practice of Constraint Programming - CP 2004*. XVII, 822 pages. 2004.
- Vol. 3257: E. Motta, N.R. Shadbolt, A. Stutt, N. Gibbins (Eds.), *Engineering Knowledge in the Age of the Semantic Web*. XVII, 517 pages. 2004. (Subseries LNAI).
- Vol. 3256: H. Ehrig, G. Engels, F. Parisi-Presicce, G. Rozenberg (Eds.), *Graph Transformations*. XII, 451 pages. 2004.
- Vol. 3255: A. Benczúr, J. Demetrovics, G. Gottlob (Eds.), *Advances in Databases and Information Systems*. XI, 423 pages. 2004.
- Vol. 3254: E. Macii, V. Paliouras, O. Koufopavlou (Eds.), *Integrated Circuit and System Design*. XVI, 910 pages. 2004.
- Vol. 3253: Y. Lakhnech, S. Yovine (Eds.), *Formal Techniques, Modelling and Analysis of Timed and Fault-Tolerant Systems*. X, 397 pages. 2004.
- Vol. 3252: H. Jin, Y. Pan, N. Xiao, J. Sun (Eds.), *Grid and Cooperative Computing - GCC 2004 Workshops*. XVIII, 785 pages. 2004.
- Vol. 3251: H. Jin, Y. Pan, N. Xiao, J. Sun (Eds.), *Grid and Cooperative Computing - GCC 2004*. XXII, 1025 pages. 2004.
- Vol. 3250: L.-J. (LJ) Zhang, M. Jeckle (Eds.), *Web Services*. X, 301 pages. 2004.
- Vol. 3249: B. Buchberger, J.A. Campbell (Eds.), *Artificial Intelligence and Symbolic Computation*. X, 285 pages. 2004. (Subseries LNAI).
- Vol. 3246: A. Apostolico, M. Melucci (Eds.), *String Processing and Information Retrieval*. XIV, 332 pages. 2004.
- Vol. 3245: E. Suzuki, S. Arikawa (Eds.), *Discovery Science*. XIV, 430 pages. 2004. (Subseries LNAI).
- Vol. 3244: S. Ben-David, J. Case, A. Maruoka (Eds.), *Algorithmic Learning Theory*. XIV, 505 pages. 2004. (Subseries LNAI).
- Vol. 3243: S. Leonardi (Ed.), *Algorithms and Models for the Web-Graph*. VIII, 189 pages. 2004.

- Vol. 3239: G. Nicosia, V. Cutello, P.J. Bentley, J. Timmis (Eds.), *Artificial Immune Systems*. XII, 444 pages. 2004.
- Vol. 3238: S. Biundo, T. Frühwirth, G. Palm (Eds.), *KI 2004: Advances in Artificial Intelligence*. XI, 467 pages. 2004. (Subseries LNAI).
- Vol. 3236: M. Núñez, Z. Maamar, F.L. Pelayo, K. Pousttchi, F. Rubio (Eds.), *Applying Formal Methods: Testing, Performance, and M/E-Commerce*. XI, 381 pages. 2004.
- Vol. 3235: D. de Frutos-Escrig, M. Nunez (Eds.), *Formal Techniques for Networked and Distributed Systems – FORTE 2004*. X, 377 pages. 2004.
- Vol. 3232: R. Heery, L. Lyon (Eds.), *Research and Advanced Technology for Digital Libraries*. XV, 528 pages. 2004.
- Vol. 3231: H.-A. Jacobsen (Ed.), *Middleware 2004*. XV, 514 pages. 2004.
- Vol. 3230: J.L. Vicedo, P. Martínez-Barco, R. Muñoz, M. Saiz Noeda (Eds.), *Advances in Natural Language Processing*. XII, 488 pages. 2004. (Subseries LNAI).
- Vol. 3229: J.J. Alferes, J. Leite (Eds.), *Logics in Artificial Intelligence*. XIV, 744 pages. 2004. (Subseries LNAI).
- Vol. 3226: M. Bouzeghoub, C. Goble, V. Kashyap, S. Spaccapietra (Eds.), *Semantics for Grid Databases*. XIII, 326 pages. 2004.
- Vol. 3225: K. Zhang, Y. Zheng (Eds.), *Information Security*. XII, 442 pages. 2004.
- Vol. 3224: E. Jonsson, A. Valdes, M. Almgren (Eds.), *Recent Advances in Intrusion Detection*. XII, 315 pages. 2004.
- Vol. 3223: K. Slind, A. Bunker, G. Gopalakrishnan (Eds.), *Theorem Proving in Higher Order Logics*. VIII, 337 pages. 2004.
- Vol. 3222: H. Jin, G.R. Gao, Z. Xu, H. Chen (Eds.), *Network and Parallel Computing*. XX, 694 pages. 2004.
- Vol. 3221: S. Albers, T. Radzik (Eds.), *Algorithms – ESA 2004*. XVIII, 836 pages. 2004.
- Vol. 3220: J.C. Lester, R.M. Vicari, F. Paraguaçu (Eds.), *Intelligent Tutoring Systems*. XXI, 920 pages. 2004.
- Vol. 3219: M. Heisel, P. Liggesmeyer, S. Wittmann (Eds.), *Computer Safety, Reliability, and Security*. XI, 339 pages. 2004.
- Vol. 3217: C. Barillot, D.R. Haynor, P. Hellier (Eds.), *Medical Image Computing and Computer-Assisted Intervention – MICCAI 2004*. XXXVIII, 1114 pages. 2004.
- Vol. 3216: C. Barillot, D.R. Haynor, P. Hellier (Eds.), *Medical Image Computing and Computer-Assisted Intervention – MICCAI 2004*. XXXVIII, 930 pages. 2004.
- Vol. 3215: M.G. Negoita, R.J. Howlett, L.C. Jain (Eds.), *Knowledge-Based Intelligent Information and Engineering Systems*. LVII, 906 pages. 2004. (Subseries LNAI).
- Vol. 3214: M.G. Negoita, R.J. Howlett, L.C. Jain (Eds.), *Knowledge-Based Intelligent Information and Engineering Systems*. LVIII, 1302 pages. 2004. (Subseries LNAI).
- Vol. 3213: M.G. Negoita, R.J. Howlett, L.C. Jain (Eds.), *Knowledge-Based Intelligent Information and Engineering Systems*. LVIII, 1280 pages. 2004. (Subseries LNAI).
- Vol. 3212: A. Campilho, M. Kamel (Eds.), *Image Analysis and Recognition*. XXIX, 862 pages. 2004.
- Vol. 3211: A. Campilho, M. Kamel (Eds.), *Image Analysis and Recognition*. XXIX, 880 pages. 2004.
- Vol. 3210: J. Marcinkowski, A. Tarlecki (Eds.), *Computer Science Logic*. XI, 520 pages. 2004.
- Vol. 3209: B. Berendt, A. Hotho, D. Mladenice, M. van Someren, M. Spiliopoulou, G. Stumme (Eds.), *Web Mining: From Web to Semantic Web*. IX, 201 pages. 2004. (Subseries LNAI).
- Vol. 3208: H.J. Ohlbach, S. Schaffert (Eds.), *Principles and Practice of Semantic Web Reasoning*. VII, 165 pages. 2004.
- Vol. 3207: L.T. Yang, M. Guo, G.R. Gao, N.K. Jha (Eds.), *Embedded and Ubiquitous Computing*. XX, 1116 pages. 2004.
- Vol. 3206: P. Sojka, I. Kopecek, K. Pala (Eds.), *Text, Speech and Dialogue*. XIII, 667 pages. 2004. (Subseries LNAI).
- Vol. 3205: N. Davies, E. Mynatt, I. Siio (Eds.), *UbiComp 2004: Ubiquitous Computing*. XVI, 452 pages. 2004.
- Vol. 3204: C.A. Peña Reyes, *Coevolutionary Fuzzy Modeling*. XIII, 129 pages. 2004.
- Vol. 3203: J. Becker, M. Platzner, S. Vernalde (Eds.), *Field Programmable Logic and Application*. XXX, 1198 pages. 2004.
- Vol. 3202: J.-F. Boulicaut, F. Esposito, F. Giannotti, D. Pedreschi (Eds.), *Knowledge Discovery in Databases: PKDD 2004*. XIX, 560 pages. 2004. (Subseries LNAI).
- Vol. 3201: J.-F. Boulicaut, F. Esposito, F. Giannotti, D. Pedreschi (Eds.), *Machine Learning: ECML 2004*. XVIII, 580 pages. 2004. (Subseries LNAI).
- Vol. 3199: H. Scheepers (Ed.), *Software and Compilers for Embedded Systems*. X, 259 pages. 2004.
- Vol. 3198: G.-J. de Vreede, L.A. Guerrero, G. Marín Raventós (Eds.), *Groupware: Design, Implementation and Use*. XI, 378 pages. 2004.
- Vol. 3196: C. Stary, C. Stephanidis (Eds.), *User-Centered Interaction Paradigms for Universal Access in the Information Society*. XII, 488 pages. 2004.
- Vol. 3195: C.G. Puntonet, A. Prieto (Eds.), *Independent Component Analysis and Blind Signal Separation*. XXIII, 1266 pages. 2004.
- Vol. 3194: R. Camacho, R. King, A. Srinivasan (Eds.), *Inductive Logic Programming*. XI, 361 pages. 2004. (Subseries LNAI).
- Vol. 3193: P. Samarati, P. Ryan, D. Gollmann, R. Molva (Eds.), *Computer Security – ESORICS 2004*. X, 457 pages. 2004.
- Vol. 3192: C. Bussler, D. Fensel (Eds.), *Artificial Intelligence: Methodology, Systems, and Applications*. XIII, 522 pages. 2004. (Subseries LNAI).
- Vol. 3191: M. Klusch, S. Ossowski, V. Kashyap, R. Unland (Eds.), *Cooperative Information Agents VIII*. XI, 303 pages. 2004. (Subseries LNAI).
- Vol. 3190: Y. Luo (Ed.), *Cooperative Design, Visualization, and Engineering*. IX, 248 pages. 2004.
- Vol. 3189: P.-C. Yew, J. Xue (Eds.), *Advances in Computer Systems Architecture*. XVII, 598 pages. 2004.

# Table of Contents, Part I

---

## Part I

---

### Cooperative Information Systems (CoopIS) 2004 International Conference

PC Co-chairs' Message .....	1
<i>Editors: Wil van der Aalst, Christoph Bussler, Avigdor Gal</i>	

### Keynote

Business Process Optimization .....	2
<i>Umeshwar Dayal</i>	

### Workflow/Process/Web Services, I

Discovering Workflow Transactional Behavior from Event-Based Log .....	3
<i>Walid Gaaloul, Sami Bhiri, Claude Godart</i>	

A Flexible Mediation Process for Large Distributed Information Systems .....	19
<i>Philippe Lamarre, Sylvie Cazalens, Sandra Lemp, Patrick Valduriez</i>	

Exception Handling Through a Workflow .....	37
<i>Hernâni Mourão, Pedro Antunes</i>	

### Workflow/Process/Web Services, II

A Flexible and Composite Schema Matching Algorithm .....	55
<i>Shoujian Yu, Zhongming Han, Jiajin Le</i>	

Analysis, Transformation, and Improvements of ebXML Choreographies Based on Workflow Patterns .....	66
<i>Ja-Hee Kim, Christian Huemer</i>	

The Notion of Business Process Revisited .....	85
<i>Jan L.G. Dietz, Nathalie Habing</i>	

## Workflow/Process/Web Services, III

Disjoint and Overlapping Process Changes: Challenges, Solutions, Applications .....	101
<i>Stefanie Rinderle, Manfred Reichert, Peter Dadam</i>	
Untangling Unstructured Cyclic Flows – A Solution Based on Continuations .....	121
<i>Jana Koehler, Rainer Hauser</i>	
Making Workflow Models Sound Using Petri Net Controller Synthesis .....	139
<i>Juliane Dehnert, Armin Zimmermann</i>	

## Database Management/Transaction

Concurrent Undo Operations in Collaborative Environments Using Operational Transformation .....	155
<i>Jean Ferrié, Nicolas Vidot, Michelle Cart</i>	
Refresco: Improving Query Performance Through Freshness Control in a Database Cluster .....	174
<i>Cécile Le Pape, Stéphane Gançarski, Patrick Valduriez</i>	
Automated Supervision of Data Production – Managing the Creation of Statistical Reports on Periodic Data .....	194
<i>Anja Schanzenberger, Dave R. Lawrence</i>	

## Schema Integration/Agents

Deriving Sub-schema Similarities from Semantically Heterogeneous XML Sources .....	209
<i>Pasquale De Meo, Giovanni Quattrone, Giorgio Terracina, Domenico Ursino</i>	
Supporting Similarity Operations Based on Approximate String Matching on the Web .....	227
<i>Eike Schallehn, Ingolf Geist, Kai-Uwe Sattler</i>	
Managing Semantic Compensation in a Multi-agent System .....	245
<i>Amy Unruh, James Bailey, Kotagiri Ramamohanarao</i>	
Modelling with Ubiquitous Agents a Web-Based Information System Accessed Through Mobile Devices .....	264
<i>Angela Carrillo-Ramos, Jérôme Gensel, Marlène Villanova-Oliver, Hervé Martin</i>	



## Events

- A Meta-service for Event Notification ..... 283  
*Doris Jung, Annika Hinze*
- Classification and Analysis of Distributed Event Filtering Algorithms .... 301  
*Sven Bittner, Annika Hinze*

## P2P/Collaboration

- A Collaborative Model for Agricultural Supply Chains ..... 319  
*Evandro Bacarin, Claudia B. Medeiros, Edmundo Madeira*
- FairNet – How to Counter Free Riding  
 in Peer-to-Peer Data Structures ..... 337  
*Erik Buchmann, Klemens Böhm*
- Supporting Collaborative Layouting in Word Processing ..... 355  
*Thomas B. Hodel, Dominik Businger, Klaus R. Dittrich*
- A Reliable Content-Based Routing Protocol  
 over Structured Peer-to-Peer Networks ..... 373  
*Jinling Wang, Beihong Jin, Jun Wei, Jing Li*

## Applications, I

- Covering Your Back: Intelligent Virtual Agents  
 in Humanitarian Missions Providing Mutual Support ..... 391  
*Pilar Herrero*
- Dynamic Modelling of Demand Driven Value Networks ..... 408  
*Antonia Albani, Christian Winnewisser, Klaus Turowski*
- An E-marketplace for Auctions and Negotiations  
 in the Constructions Sector ..... 422  
*Marina Bitsaki, Manos Dramitinos, George D. Stamoulis,  
 George Antoniadis*

## Applications, II

- Managing Changes to Engineering Products  
 Through the Co-ordination of Human and Technical Activities ..... 442  
*Wendy K. Ivins, W. Alex Gray, John C. Miles*
- Towards Automatic Deployment in eHome Systems:  
 Description Language and Tool Support ..... 460  
*Michael Kirchhof, Ulrich Norbistrath, Christof Skrzypczyk*

A Prototype of a Context-Based Architecture for Intelligent Home Environments .....	477
<i>Pablo A. Haya, Germán Montoro, Xavier Alamán</i>	

## Trust/Security/Contracts

Trust-Aware Collaborative Filtering for Recommender Systems .....	492
<i>Paolo Massa, Paolo Avesani</i>	
Service Graphs for Building Trust .....	509
<i>Pınar Yolum, Munindar P. Singh</i>	
Detecting Violators of Multi-party Contracts .....	526
<i>Lai Xu, Manfred A. Jeusfeld</i>	

## Potpourri

Leadership Maintenance in Group-Based Location Management Scheme .....	544
<i>Gary Hoi Kit Lam, Hong Va Leong, Stephen Chi Fai Chan</i>	
TLS: A Tree-Based DHT Lookup Service for Highly Dynamic Networks .....	563
<i>Francesco Buccafurri, Gianluca Lax</i>	
Minimizing the Network Distance in Distributed Web Crawling .....	581
<i>Odysseas Papapetrou, George Samaras</i>	

## Ontologies, Databases, and Applications of Semantics (ODBASE) 2004 International Conference

PC Co-chairs' Message .....	597
<i>Editors: Tiziana Catarci, Katia Sycara</i>	

## Keynote

Helping People (and Machines) Understanding Each Other: The Role of Formal Ontology .....	599
<i>Nicola Guarino</i>	

## Knowledge Extraction

Automatic Initiation of an Ontology .....	600
<i>Marie-Laure Reinberger, Peter Spyns, A. Johannes Pretorius, Walter Daelemans</i>	
Knowledge Extraction from Classification Schemas .....	618
<i>Steffen Lamparter, Marc Ehrig, Christoph Tempich</i>	