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On the Move to Meaningful Internet Systems: OTM 2013 Workshops

Confederated International Workshops:
OTM Academy, OTM Industry Case Studies Program, ACM, EI2N, ISDE, META4eS, ORM, SeDeS, SINCOM, SMS, and SOMOCO 2013
Graz, Austria, September 9-13, 2013
Proceedings

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General Co-Chairs' Message for OnTheMove 2013

The OnTheMove 2013 event, held 9–13 September in Graz, Austria, further consolidated the importance of the series of annual conferences that was started in 2002 in Irvine, California. It then moved to Catania, Sicily in 2003, to Cyprus in 2004 and 2005, Montpellier in 2006, Vilamoura in 2007 and 2009, in 2008 to Monterrey, Mexico, to Heraklion, Crete in 2010 and 2011, and to Rome in 2012. This prime event continues to attract a diverse and relevant selection of today's research worldwide on the scientific concepts underlying new computing paradigms, which, of necessity, must be distributed, heterogeneous, and supporting an environment of resources that are autonomous and yet must meaningfully cooperate. Indeed, as such large, complex, and networked intelligent information systems become the focus and norm for computing, there continues to be an acute and even increasing need to address the implied software, system, and enterprise issues and discuss them face to face in an integrated forum that covers methodological, semantic, theoretical, and application issues as well. As we all realize, email, the Internet, and even video conferences are not by themselves optimal nor even sufficient for effective and efficient scientific exchange.

The OnTheMove (OTM) Federated Conference series has been created precisely to cover the scientific exchange needs of the communities that work in the broad yet closely connected (and moving) fundamental technological spectrum of Web-based distributed computing. The OTM program every year covers data and Web semantics, distributed objects, Web services, databases, information systems, enterprise workflow and collaboration, ubiquity, interoperability, mobility, grid, and high-performance computing.

OnTheMove does not consider itself a so-called multi-conference event but instead is proud to give meaning to the "federated" aspect in its full title: it aspires to be a primary scientific meeting place where all aspects of research and development of internet- and intranet-based systems in organizations and for e-business are discussed in a scientifically motivated way, in a forum of loosely interconnected workshops and conferences. This year's event provided, for the 11th time, an opportunity for researchers and practitioners to understand, discuss, and publish these developments within the broader context of distributed and ubiquitous computing. To further promote synergy and coherence, the main conferences of OTM 2013 were conceived against a background of three interlocking global themes:

- Cloud Computing Infrastructures emphasizing Trust, Privacy, and Security
- Technology and Methodology for Data and Knowledge Resources on the (Semantic) Web
- Deployment of Collaborative and Social Computing for and in an Enterprise Context.

Originally the federative structure of OTM was formed by the co-location of three related, complementary, and successful main conference series: DOA (Distributed Objects and Applications, held since 1999), covering the relevant infrastructure-enabling technologies, ODBASE (Ontologies, DataBases, and Applications of SEmantics, since 2002) covering Web semantics, XML databases, and ontologies, and of course CoopIS (Cooperative Information Systems, held since 1993), which studies the application of these technologies in an enterprise context through, e.g., workflow systems and knowledge management systems. At the 2011 event, security issues, originally started as topics of the IS workshop in OTM 2006, became the focus of DOA as secure virtual infrastructures, further broadened to cover aspects of trust and privacy in so-called Cloud-based systems.

Each of the main conferences specifically seeks high-quality contributions and encourages researchers to treat their respective topics within a framework that simultaneously incorporates (a) theory, (b) conceptual design and development, (c) methodology and pragmatics, and (d) application in particular case studies and industrial solutions.

As in previous years we again 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 emergent areas related to the general area of Web-based distributed computing. This year this difficult and time-consuming job of selecting and coordinating the workshops was brought to a successful end by Yan Tang, and we were very glad to see that six of our earlier successful workshops (ORM, EI2N, META4eS, ISDE, SOMOCO, and SeDeS) re-appeared in 2013, in some cases for the fifth or even ninth time, and often in alliance with other older or newly emerging workshops. Two brand-new independent workshops could be selected from proposals and hosted: ACM and SMS. The Industry Track, started in 2011 under the auspicious leadership of Hervé Panetto and OMG's Richard Mark Soley, further gained momentum and visibility.

The OTM registration format ("one workshop buys all") actively intends to stimulate workshop audiences to productively mingle with each other and, optionally, with those of the main conferences. In particular EI2N continues to so create and exploit a visible synergy with CoopIS.

We were most happy to see that in 2013 the number of quality submissions for the OnTheMove Academy (OTMA) again increased. OTMA implements our unique interactive formula to bring PhD students together, and aims to carry our "vision for the future" in research in the areas covered by OTM. It is managed by a dedicated team of collaborators led by Peter Spyns and Anja Metzner, and of course by the OTMA Dean, Erich Neuhold. In the OTM Academy, PhD research proposals are submitted by students for peer review; selected submissions and their approaches are to be presented by the students in front of a wider audience at the conference, and are independently and extensively analysed and discussed in front of this audience by a panel of senior professors. One will readily appreciate the effort invested in this by the OTMA Faculty...

As the three main conferences and the associated workshops all share the distributed aspects of modern computing systems, they experience the application pull created by the Internet and by the so-called Semantic Web. For DOA-Trusted Cloud 2013, the primary emphasis remained on the distributed object infrastructure and its virtual and security aspects. For ODBASE 2013, the focus continued to be the knowledge bases and methods required for enabling the use of formal semantics in web-based databases and information systems. For CoopIS 2013, the focus as before was on the interaction of such technologies and methods with business process issues, such as occur in networked organizations and enterprises. These subject areas overlap in a scientifically natural fashion and many submissions in fact also treated an envisaged mutual impact among them. As with the earlier editions, the organizers wanted to stimulate this cross-pollination by a program of famous keynote speakers around the chosen themes and shared by all OTM component events. We were quite proud to announce this year

- Richard Mark Soley, OMG, USA;
- Manfred Hauswirth, DERI, Ireland;
- Herbert Zimmerman, Metasonic, Germany;
- Ainhoa Uriarte, European Commission.

And additionally, an inspiring dinner keynote by justly famous Prof. Dr. Em. Hermann Maurer, H.C. mult., allowed participants to put everything past, present, and future into a coherent context.

In spite of a general downturn in submissions observed this year for almost all conferences in computer science and IT, we were fortunate to receive a total of 137 submissions for the three main conferences and 131 submissions in total for the workshops. Not only may we indeed again claim success in attracting a representative volume of scientific papers, many from the USA and Asia, but these numbers of course allowed the Program Committees to compose a high-quality cross-section of current research in the areas covered by OTM. In fact, the Program Chairs of the CoopIS and ODBASE conferences decided to accept only approximately one full paper for each four submitted, not counting posters. For the workshops and DOA-Trusted Cloud 2013 the acceptance rate varied but the aim was to stay consistently at about one accepted paper for two to three submitted, this rate as always subordinated to proper peer assessment of scientific quality. As usual we have separated the proceedings into two volumes with their own titles, one for the main conferences and one for the workshops and posters, and we are again most grateful to the Springer LNCS team in Heidelberg for their professional support, suggestions, and meticulous collaboration in producing the files and indexes ready for downloading on the USB sticks. This year, a number of high-quality international journals will select best papers from the conferences and workshops to be extended and further submitted for a few special issues of their journal. This is also a great opportunity for some researchers to disseminate their results worldwide.

The reviewing process by the respective OTM Program Committees was as always performed to professional standards: each paper in the main conferences

was reviewed by at least three referees (four for most ODBASE papers), with arbitrated email discussions in the case of strongly diverging evaluations. It may be worth emphasizing once more that it is an explicit OnTheMove policy that all conference Program Committees and Chairs make their selections completely autonomously from the OTM organization itself. As in recent years, proceedings on paper are now only available to be ordered separately.

The General Chairs are once more especially grateful to the many people directly or indirectly involved in the setup of these federated conferences. Not everyone realizes the large number of persons that need to be involved, and the huge amount of work, commitment, and in the uncertain economic and funding climate of 2013 certainly also financial risk, that is entailed by the organization of an event like OTM. Apart from the persons in their roles mentioned above, we wish to thank in particular explicitly our nine main conference PC Co-Chairs:

- CoopIS 2013: Johann Eder, Zohra Bellahsene, Rania Y. Khalaf;
- ODBASE 2013: Pieter De Leenheer, Dejing Dou, Haixun Wang;
- DOA-Trusted Cloud 2013: Norbert Ritter, Makoto Takizawa, Volkmar Lotz.

And similarly we thank the 2013 OTMA and Workshops PC (Co-)Chairs (in order of appearance on the website): Irina Richkova, Ilia Bider, Keith Swenson, Alexis Aubry, Georg Weichhart, J. Cecil, Kasuhiko Terashima, Alok Mishra, Jürgen Münch, Deepti Mishra, Ioana Ciuciu, Anna Fensel, Rafael Valencia García, Mamoun Abu Helu, Stefano Bortoli, Terry Halpin, Herman Balsters, Avi Wasser, Jan Vanthienen, Dimitris Spiliotopoulos, Thomas Risse, Nina Tahmasebi, Fernando Ferri, Patrizia Grifoni, Arianna D'Ulizia, Maria Chiara Caschera, Irina Kondratova, Peter Spyns, Anja Metzner, Erich J. Neuhold, Alfred Holl, Maria Esther Vidal, and Omar Hussain.

All of them, together with their many PC members, performed a superb and professional job in managing the difficult yet existential process of peer review and selection of the best papers from the harvest of submissions. We all also owe a serious debt of gratitude to our supremely competent and experienced Conference Secretariat and technical support staff in Brussels and Guadalajara, respectively Jan Demey and Daniel Meersman.

The General Co-Chairs also thankfully acknowledge the academic freedom, logistic support, and facilities they enjoy from their respective institutions, Vrije Universiteit Brussel (VUB), Belgium, Université de Lorraine, Nancy, France and Latrobe University, Melbourne, Australia without which such a project quite simply would not be feasible. We do hope that the results of this federated scientific enterprise contribute to your research and your place in the scientific network... We look forward to seeing you at next year's event!

July 2013

Robert Meersman
Hervé Panetto
Tharam Dillon
Yan Tang

Organization

OTM (On The Move) is a federated event involving a series of major international conferences and workshops. These proceedings contain the papers presented at the OTM Academy 2013, the OTM Industry Case Studies Program 2013, the OTM 2013 federated workshops and the OTM 2013 federated conferences poster papers.

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Keynotes

Streams, Semantics and the Real World

Manfred Hauswirth

Digital Enterprise Research Institute (DERI),
Galway, Ireland

Short Bio

Manfred Hauswirth is the Vice-Director of the Digital Enterprise Research Institute (DERI), Galway, Ireland and a professor at the National University of Ireland, Galway (NUIG).

His research current research focus is on linked data streams, semantic sensor networks, sensor networks middleware, large-scale semantics-enabled distributed information systems and applications. Manfred has also worked extensively in peer-to-peer systems, Internet of things, self-organization and self-management, service-oriented architectures and distributed systems security.

He has published over 160 papers in these domains, he has co-authored a book on distributed software architectures and several book chapters on data management and semantics.

Manfred is an associate editor of IEEE Transactions on Services Computing, has served in over 180 program committees of international scientific conferences and was program co-chair of the Seventh IEEE International Conference on Peer-to-Peer Computing (IEEE P2P) in 2007, general chair of the Fifth European Semantic Web Conference (ESWC) in 2008, program co-chair of the 12th International Conference on Web Information System Engineering (WISE) in 2011, and program co-chair of the 10th International Conference on Ontologies, DataBases, and Applications of Semantics (ODBASE) in 2011.

He is a member of IEEE and ACM and is on the board of WISEN, the Irish Wireless Sensors Enterprise Led Network, the scientific board of the Corporate Semantic Web research center at FU Berlin, and the Scientific Advisory Board of the Center for Sensor Web Technologies (CLARITY) in Dublin, Ireland.

Talk

"Streams, Semantics and the Real World"

Until recently the virtual world of information sources on the World Wide Web and activities in the real world have always been separated. However, knowledge accessible on the Web (the virtual world) may influence activities in the real

world and vice versa, but these influences are usually indirect and not immediate. We still lack general-purpose means to interconnect and link this information in a meaningful and simple way. Additionally, information comes in the form of streams which complicates the data management at all levels - from the Internet of Things (IoT) up to the backend information systems. The increasingly popular Linked Data paradigm provides a great model for data integration. However, supporting this approach from resource-constrained sensors on the IoT to (stream) databases and (stream) reasoning systems, possibly as hosted solutions in the cloud, opens up many genuine research problems that require well-orchestrated and synchronized research efforts in and across research communities. In this talk I will discuss these problems and possible solutions.

Empowering Process Participants – The Way to a Truly Agile Business Process Management

Herbert Kindermann

Metasonic AG, Germany

Short Bio

Since August 2009, Herbert Kindermann, has been the sole member of the Executive Board and CEO of Metasonic AG and responsible for all operative units, from marketing to software development. Kindermann focus on the company's customer orientation and the internationalization of sales and services around Metasonic® Suite. Before joining Metasonic in June 2007 as a member of the board of directors, Herbert held the position of a Member of the Executive Board at IDS Scheer with responsibility for all international business of the IDS Scheer AG. Previously, Herbert held various positions at COMSOFT GmbH (project manager, department manager and building up the SAP consulting business), IBCS S.A. (founder and CEO, building up business with subsidiaries in Germany, Czech Republic and Slovakia). In the beginning of the year 2000, IBCS became a member of the IDS Scheer group, taking over business responsibility for the region of Central and Eastern Europe. In 2003 Herbert Kindermann became a Member of the Extended Board of IDS Scheer AG.

Talk

"Empowering process participants - the way to a truly agile business process management"

Business process management (BPM) is widely adapted in large and mid-sized companies. While the focus is shifting more and more from the modelling of business processes for documentation reasons towards IT-backed business process support for the end-users there are still some open spots to consider to bring real business process management to the business departments of those companies. Herbert Kindermann will shed some light on current tool support for business process participants with respect to BPM, the actual needs of the business departments, the gap in between and how current technologies and trends, like a strong focus on KPIs, semantically enabled user interfaces, big data analytics, gamification and flexible workflow technology could lead to fundamental organizational changes and provide more enterprise agility in the future.

Long-Range Forecasting: Important Yet Almost Impossible

Hermann Maurer

TU Graz, Austria

Short Bio

Professor Dr. Hermann Maurer is Professor Emeritus at Graz University of Technology. He started his career at the University of Calgary as Assistant and Associate Professor, was appointed full professor at Karlsruhe just before he turned 30, and has been now Professor and Dean in Computer Science at Graz University of Technology since 1978, with some interruptions, like guest-professorships of more than a year at Denver University, University of Auckland, and shorter visits to Edith Cowan University in Perth, SMU in Dallas, Waterloo, Brasilia and others. Chair of the Informatics Section of Academia Europaea, "The Academy of Europe" since April 2009, and receiver of many national and international distinctions, Professor Maurer is author of over 650 papers and 20 books, founder of a number of companies, supervised some 60 Ph.D. and over 400 M.Sc. students and was leader of numerous multi-million Euro projects

Talk

"Long-range forecasting: important yet almost impossible"

In this talk I will first explain why we desperately need long range forecasts; then I present arguments (far beyond what comes to ones mind immediately) why such forecasts are in general impossible. Some of the arguments are also important for our own life and for society in general. I conclude this section, however, with one dramatic long range prediction. In the rest of the talk I discuss some important aspects of WWW, smart phones and e-Learning and conclude by showing why the main 5 theses of Spitzer's book "Digital dementia: how we ruin us and our children" are (fortunately) only partially correct, but why the impact of this book (in German, no translation exists so far) is potentially dangerous.

The Model-Driven (R)evolution

Richard Mark Soley

OMG

Short Bio

Dr. Richard Mark Soley is Chairman and Chief Executive Officer of OMG®.

As Chairman and CEO of OMG, Dr. Soley is responsible for the vision and direction of the world's largest consortium of its type. Dr. Soley joined the nascent OMG as Technical Director in 1989, leading the development of OMG's world-leading standardization process and the original CORBA® specification. In 1996, he led the effort to move into vertical market standards (starting with healthcare, finance, telecommunications and manufacturing) and modeling, leading first to the Unified Modeling Language TM (UML®) and later the Model Driven Architecture® (MDA®). He also led the effort to establish the SOA Consortium in January 2007, leading to the launch of the Business Ecology Initiative (BEI) in 2009. The Initiative focuses on the management imperative to make business more responsive, effective, sustainable and secure in a complex, networked world, through practice areas including Business Design, Business Process Excellence, Intelligent Business, Sustainable Business and Secure Business. In addition, Dr. Soley is the Executive Director of the Cloud Standards Customer Council, helping end-users transition to cloud computing and direct requirements and priorities for cloud standards throughout the industry.

Dr. Soley also serves on numerous industrial, technical and academic conference program committees, and speaks all over the world on issues relevant to standards, the adoption of new technology and creating successful companies. He is an active angel investor, and was involved in the creation of both the Eclipse Foundation and Open Health Tools. Previously, Dr. Soley was a cofounder and former Chairman/CEO of A.I. Architects, Inc., maker of the 386 HummingBoard and other PC and workstation hardware and software. Prior to that, he consulted for various technology companies and venture firms on matters pertaining to software investment opportunities. Dr. Soley has also consulted for IBM, Motorola, PictureTel, Texas Instruments, Gold Hill Computer and others. He began his professional life at Honeywell Computer Systems working on the Multics operating system.

A native of Baltimore, Maryland, U.S.A., Dr. Soley holds bachelor's, master's and doctoral degrees in Computer Science and Engineering from the Massachusetts Institute of Technology.

Talk

"The Model-Driven (R)evolution"
All sorts of promises of a revolution in software development accompany the phrase "model-driven" these days. Model Driven Architecture, Model Driven Development, Model Driven Enterprise – there must be something to these ideas, but is "model driven" the key to a revolution, or just the newest buzz word? Will we have to completely change the way we develop systems? Is code dead?

Richard Soley, Chairman of the Object Management Group (stewards of the Model Driven Architecture Initiative) will dispel some rumors about the model driven approach, and put it in the context of computing history. While there are some important implications for how complex systems are built, like most revolutions in software, Model Driven Architecture has straightforward underpinnings and represents a direct evolution from where we have been.

Overview of European Commission R&D Activities on Net Innovation

Ainhoa Uriarte

Short Bio

Ainhoa Uriarte is Project Officer in the unit "Net Innovation" of the Communications Networks, Content and Technology Directorate General in the European Commission. She has a degree in Industrial Engineering and a Postgraduate diploma in Business and Management. Previous to working for the Commission Mrs. Uriarte hold a position as research programme manager in the Spanish National Research Council (CSIC) and she has over eight years of experience working as a research project manager in several public and private institutions. She joined the European Commission in 2012 where she contributes to the implementation of the Net Innovation domain of the Information and Communication Technologies area of the 7th Framework Programme for research and technological development.

Talk

"Overview of European Commission R&D activities on Net Innovation"

The talk will give an overview of the research projects funded by the European Commission on Sensing Enterprises. Also future relevant activities under the next H2020 Framework Programme for Research and Innovation will be presented. The aim of the Future Internet challenge in the new programme is three fold; addressing the limitations of an Internet which was not designed to support the very large set of requirements imposed by an ever more diversified usage; supporting the advent of more efficient computational and data management models that respond to the challenges posed by increased device / object connectivity and data-intensive applications; and leveraging the Internet to foster innovative usages of social and economic value.

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