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## Welcome message from General Chair:

On behalf of the Organizing Committee, I welcome you to the 2nd International Conference on Distributed Event-Based Systems (DEBS08) in the Dipartimento di Informatica e Sistemistica "Antonio Ruberti" of Sapienza University of Rome.

DEBS08 is following on the success of the inaugural edition held in Toronto and previous five editions of the DEBS workshops held from 2002 to 2006. The conference is organized in co-operation with USENIX, the IEEE and the IEEE Computer Society, the ACM (SIGSOFT and SIGMOD) and IFIP. The objectives of the DEBS conference are to provide a forum dedicated to the dissemination of original research, the discussion of practical insights, and the reporting on relevant experience relating to event-based computing that was previously scattered across several scientific and professional communities. DEBS therefore is the ideal place for academia and industry to exchange ideas through industry and research papers, software demos and fast abstracts. Moreover this year we complement the technical program setting up a set of prestigious keynote speeches, an educational day covering different aspects of event-based infrastructures and complex event processing as well as an interesting panel on security in event-based infrastructures.

The Dipartimento di Informatica e Sistemistica "Antonio Ruberti" of Sapienza University of Rome offers an unique and excellent location for this Conference, it is indeed walking distance from many beautiful historical places of the ancient Rome such as Colisseum, Domus Aurea etc...

As General Chair, I would like to take this opportunity to thank the large number of people who have contributed to the planning and organization of this conference. First of all I would like to thank the PC Co-Chairs, Sara Tucci Piergiovanni and Alejandro Buchmann, the Industry Chair, Eliezer Dekel, the Software Demo Chair, Annika Hinze and the Tutorial Chair, Gero Muhl as well as all the PC members for their excellent job through the entire process of the selection of contributions for the technical program. My personal thank goes also to the Publication Chair Marin Bertier for his help in assembling the camera ready material. I am especially grateful to the keynote speakers (Alexander Wolf, Imperial College; Jacques Bus, Head of Unit, - Security DG Information Society and Media, European Commission; Douglas C. Schmidt - Vanderbilt University) for their kind acceptance of the invitation to give interesting and motivating talks. I also express my sincere gratitude to the tutorial speakers and to the participants to the panels. All of them honoured with their presence this edition of the conference.

I am especially indebted to Arno Jacobsen the DEBS Steering Committee Chair and Gero Muhl last DEBS PC chair for their constructive suggestions and invaluable advices for the conference organization. Thanks also to the organization Co-Chairs Leonardo Querzoni and Vivien Quema for their work and to Carola Aiello and Maria Pia Vandilli for helping on logistics and administrative matters. In particular, the help of Leonardo has been invaluable to fix several critical organizational problems. The Publicity CoChairs of this Symposium have been also of much help for disseminating information about DEBS across all the reference communities. I also thank all the graduate students for their dedicated volunteer services that made the Conference possible.

Last but not least, I want to thank EventZero and Sapienza University of Rome for their generous support to the conference and USENIX for providing student grants.

Thank you for coming to Rome! We hope you find it fruitful and enjoyable.

July 2008 **Roberto Baldoni**  
General Chair, DEBS 2008



## Message from Chairs:

DEBS is rapidly becoming the premier forum for research and new developments in the area of event-based systems and event processing. In this year's edition of DEBS we put particular emphasis on broadening the scope of the conference and bringing together researchers and practitioners from the various communities interested in event processing. Event processing is an area in which the line between academic research and challenging developments in industry is blurred. This fact is also reflected in this year's technical program in which research and industrial contributions are mixed and the papers are grouped by topic.

The technical program includes sessions on modeling event based systems, detecting and reasoning about complex events, content-based pub/sub event distribution, event processing middleware, filtering and synchronization, availability and reliability of event based systems, event processing in sensor networks and runtime environments, complex event processing and streaming queries.

For the technical conference program we selected a total of 20 research and 4 industrial papers from over 80 submissions for an acceptance rate of roughly 30%. Each paper received four reviews from highly qualified reviewers who are all active members of the event processing community. We think this program represents a good cross section of research and development in event based systems.

The program is complemented by an excellent array of keynotes, a panel on security in event based systems, a fast abstract session, software demonstrations, and, for the first time, a one-day tutorial program. Software demonstrations are presented at the conference in poster form and as a live demonstration of a software system. Eight demo papers have been accepted in a combination of submitted and invited demonstrations. They are represented in the proceedings as short papers describing the software as well as the demo. The one-day tutorial program hosts internationally recognized

speakers talking about current research topics relevant both for industry and academic research in the area of event-based systems. We would like to thank all the members of the program committee, both research and industrial, for their effort in reviewing the papers on time, discussing them online and giving meaningful feedback. We would also like to thank all the authors who submitted their work and chose DEBS as their forum. Last but not least we thank all the participants who through their participation in DEBS08 contribute to the discussions and the vitality of the event processing community.

*Alejandro Buchmann*  
*Sara Tucci Piergiovanni*  
*Eliezer Dekel*  
*Annika Hinze*  
*Gero Mühl*

## Rome Guide:

### **Welcome in Rome!**

Rome is known as, Caput Mundi (Capital of the world), la Città Eterna (The Eternal City), Limen Apostolorum (Threshold of the Apostles), la città dei sette colli (The city of the seven hills) or simply l'Urbe (The City).

It is a city where the realities of the past and the present live together completely integrated. It has been the capital of the emperors, the popes, and the kings. It is one of the greatest centres of the Classical, Renaissance, and Baroque art.

The typical stratification of cultures, styles, and works of art realised during the centuries is the most specific and fascinating characteristic of the city. The history of the art in Rome is characterised by the survival of monuments dating back from the prehistory up to the present.

Today, Rome is modern and cosmopolitan, and the third most-visited tourist destination in the EU.

Rome enjoys a typical Mediterranean climate which characterizes the Mediterranean coasts of Italy. It is at its most comfortable from April through June, and from mid-September to October; in particular, the Roman *ottobrate* (the Italian word *ottobrata* can roughly be translated as "beautiful October day") are famously known as sunny and warm days. By August, the temperature during the heat of the day often exceeds 32°C (90°F). The average high temperatures in December are about 13°C (57°F), but below zero lows are not uncommon.

<http://www.romecity.it/EnglishVersion.htm>

<http://www.aboutroma.com/>

## Getting round in Rome:

"A.T.A.C. Roma" makes available means of transport like Subway, City-Bus and Tram to getting round the city. All the informations are on <http://www.atac.roma.it/>, and there are various ways to enjoy of the services:

- *BIT - Integrated Time Ticket:* 75 minutes from the validation for 1.00 €.
- *BIG – Integrated Daily Ticket:* Daily ticket until midnight for 4.00 €
- *BTI – Integrated Tourist Ticket:* 3 days ticket from the date indicated for 11.00 €
- *CIS – Integrated Weekly Ticket:* Weekly ticket from the date indicated for 16.00 €
- *Monthly Pass – Ordinary Personal:* Monthly ticket for the month indicated for 30.00 €

All the tickets can be bought at newsagent's, tobacconist's, automatic vending machine (in the subway station, too) and at "ticket offices and shops".

The Subway is divided into two subway lines: *METRO A* and *METRO B* that cross themselves in TERMINI STATION; from there you can take both line. The conference venue is near MANZONI stop.



## Conference Venue:

The conference will be held at:

**Dipartimento di Informatica e Sistemistica (DIS)  
Sapienza Università di Roma**

**Via Ariosto 25  
Roma, Italy**



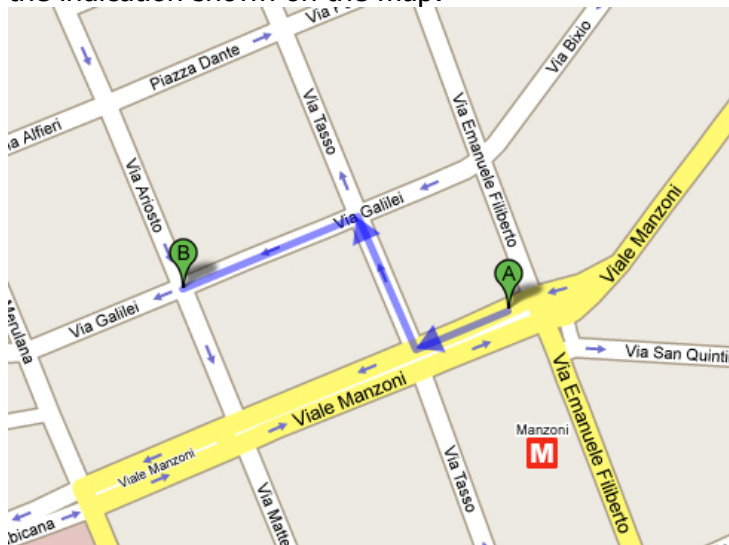
### How to reach the conference venue:

- **Airport "Leonardo da Vinci" - Fiumicino:** a train leaves the airport for the main city station (Termini) every half an hour. Termini train station is located at the very city center and offers connection by bus and

underground to any other location in the city. The price for a ticket is 9.50 EUR. As an alternative taxis are usually available just outside of the airport arrival terminal. A trip to the city center on an authorized taxi (white cars with taximeter) will cost you 40.00 EUR.

- **Airport "G.B. Pastine" - Ciampino:** private buses are available outside the terminal to reach Termini station. The trip will last about 30 minutes (but it can take more, depending on traffic conditions) and will cost you about 6.00 EUR. You can check for precise price informations on [http://www.terravision.eu/rome\\_ciampino.html](http://www.terravision.eu/rome_ciampino.html) and <http://www.sitbusshuttle.it/>. As an alternative taxis are usually available just outside of the terminal. A trip to the city center on an authorized taxi (white cars with taximeter) will cost you 30.00 EUR.
- **Termini railway station:** you can quickly reach the conference venue using the underground Line A, direction "Anagnina", getting off at station "Manzoni". Otherwise you can use bus lines 360 (direction "Zama", get off at stop "Emanuele Filiberto/Dante"), 16 (direction "XX Settembre", get off at stop "Merulana/Labicana") or 714 (direction "Palazzo dello sport", get off at stop "Merulana/Labicana"). Bus stops are located just in front of the railway station. NOTE: bus and metro tickets must be bought in advance (no vending machine onboard).

- **From the station "Manzoni" to conference:** follow the indication shown on the map:

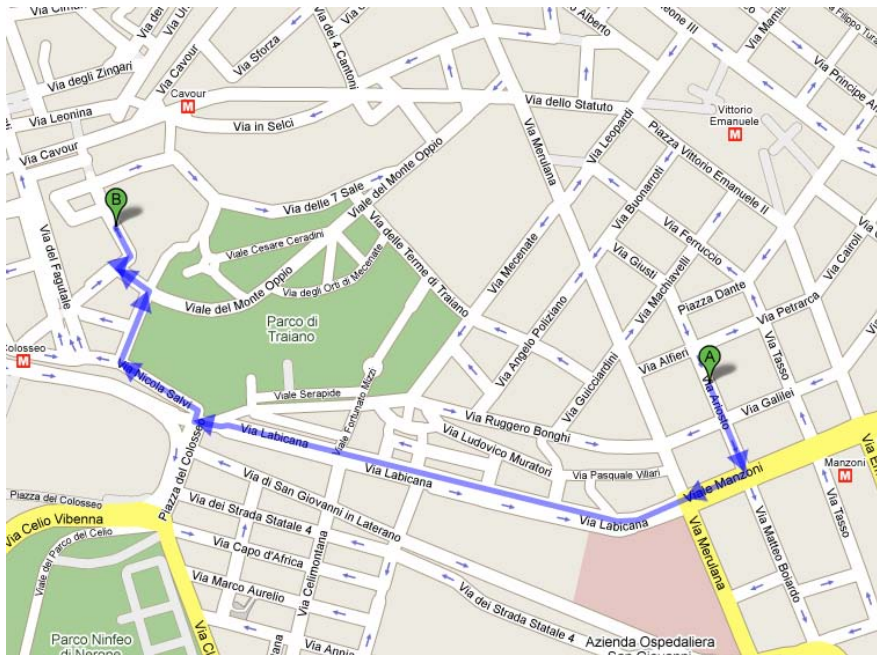


[www.atac.roma.it](http://www.atac.roma.it)

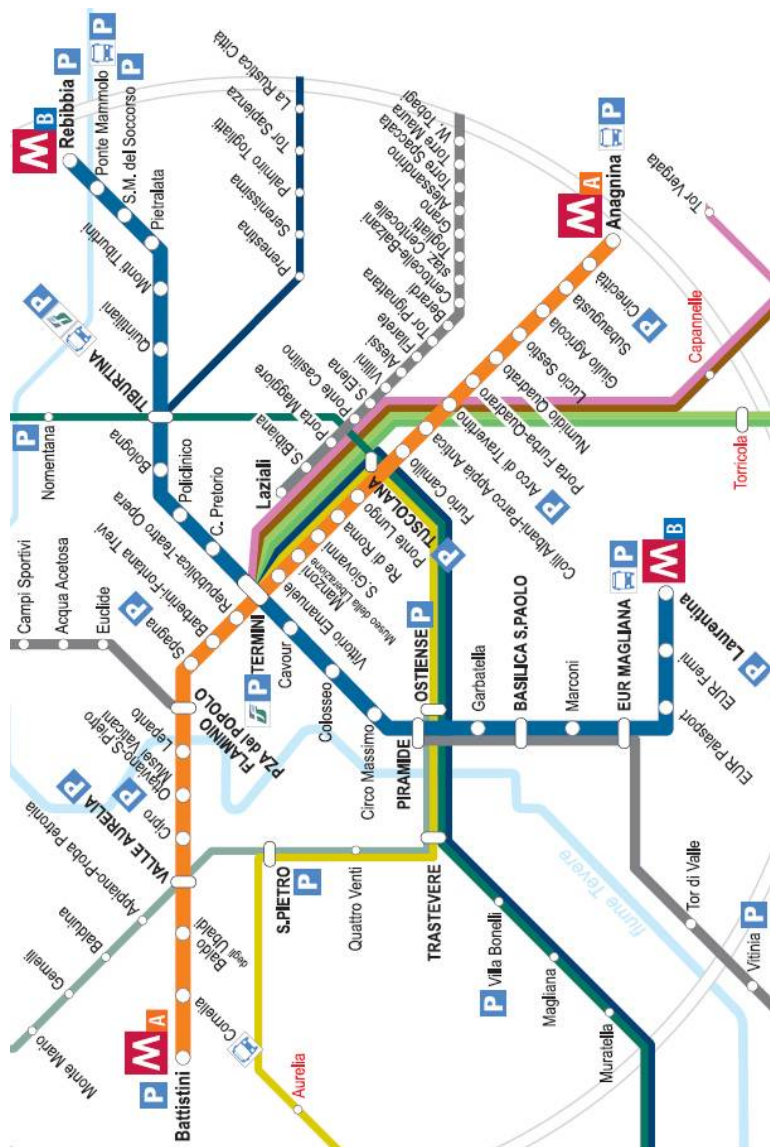
[maps.google.com](http://maps.google.com)

- **From the conference to social event:** follow the indication shown on the map:

*(Social event is in **Via Eudossiana,12** at school of Engineering)*



## Subway map



## Historical notes about the conference venue

During the conference you will see the new building of our department (**DIS**) inaugurated last year and the cloister of the school of Engineering, University of Rome "La Sapienza". Internationally renowned research groups in computer science, systems science, and management science are active at DIS. Basic research is its main goal, with a strong emphasis on interdisciplinary research, on applications that stimulate basic research, and on technology transfer and dissemination of results. DIS currently employs 32 full professors, 19 associate professors, 13 assistant professors, and is directed by Prof. L. Carlucci Aiello.

The cloister of the school of Engineering was the old monastery of church "**San Pietro in Vincoli**" placed on a side of it and built in 1493-1503 by Giuliano Sangallo.

We suggest you to visit the church where you can admire **Michelangelo's Moses**: the famous marble sculpture by Michelangelo Buonarroti (1513-1515) which depicts the Biblical figure Moses. Michelangelo felt that this was his most life-like creation. Legend has it that upon its completion he struck the right knee commanding, "now speak!" as he felt that life was the only thing left inside the marble. There is a scar on the knee thought to be the mark of Michelangelo's hammer.



Near the cloister you can admire the **Colosseum**, from **Colle Oppio** where the school of Engineering is situated.





# DEBS 2008 time table

Tuesday – 1st July

Wednesday – 2nd July

Thursday – 3rd July

Friday – 4th July

8.00 am	registration		
9.00 am	The OMG data distribution service for real-time systems part I	Events and streams: harnessing and unleashing their synergy - part I	
10.00 am		Coffee break	
11.00 am	The OMG data distribution service for real-time systems part II	Events and streams: harnessing and unleashing their synergy - part II	
12.00 pm	Lunch	Lunch Tutorial: Interest clustering techniques for efficient event routing in large-scale settings	
1.00 pm	registration		
2.00 pm	Event processing architecture and patterns	Large-scale publish-subscribe systems: state of the art and research directions part I	
3.00 pm		Coffee break	
4.00 pm	workshop esteem		
5.00 pm	CEP: functionality, technology and context	Large-scale publish-subscribe systems: state of the art and research directions part II	
6.00 pm		Coffee break	
7.00 pm	registration and welcome reception		
8.00 pm		Access control in publish/subscribe systems	

	Welcome	
	Keynote: Alexander L. Wolf	Coffee break
	Session 1 Content-based publish-subscribe	
	Session 2 Filtering and synchronization	Lunch provided by the conference
	Session 3 Event processing in sensor networks and runtime environments	Coffee Break and software Demonstrations
		Session 4 Complex event processing and streaming queries
		Business Meeting

	Session 5 Availability and reliability of event-based systems	Coffee break
	Session 6 Event processing middleware	
	Keynote: Jacques Bus	Lunch provided by the conference
		Panel Discussion: security issues in event-based infrastructures
		Coffee Break and software Demonstration
		Fast Abstract
		Social Event

	Fast Abstract	
	Coffee break	
	Keynote: Douglas C. Schmidt	
	Session 7 Modeling event based systems	Lunch provided by the conference
		Session 8 Complex event processing and streaming queries
		Conclusion



Tuesday – 1<sup>st</sup> July

**08,00 am – 10,00 am**  
**Registration**

08,30 am – 07.00 pm

*All tutorials will take place on July 1<sup>st</sup> in two parallel tracks  
and in an Esteem Track.*

**01,00 pm – 02,00 pm**  
**Registration esteem**

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## **ESTEEM Track**

**02,00 pm – 03,00 pm**

**Session chair :** *Silvana Castano* (Università degli Studi di Milano  
Dipartimento di Informatica e Comunicazione)

**Keynote: Emergent Semantics and Cooperation in  
Open Systems: Achievements and Challenges**

***T. Catarci*** (University of Rome "La Sapienza")

03,00 pm – 03,30 pm  
*Coffee Break*

**03,30 am – 05,00 pm**

**Session chair :** *Letizia Tanca* (Politecnico di Milano  
Dipartimento Elettronica eInformazione)

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**Session 1**

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**- Core-based Reconfiguration for Reliable Overlay Networks**

*S. Bonomi* (University of Rome "La Sapienza") *and S. Tucci Piergiovanni* (University of Rome "La Sapienza")

**- A Semantic Event Processing System for Knowledge-Driven Coordination**

*M. Murth* (Institute of Computer Languages, Vienna university of Technology, Vienna) *and E. Kühn* (Institute of Computer Languages, Vienna university of Technology, Vienna)

**05,00 am – 18,30 pm**

**Session chair :** *Valeria De Antonellis*

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**Session 2**

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**- Record Linkage as a Multiobjective Optimization Problem solved by Evolutionary Computation**

*F. Cusmai, C. Aiello, M. Scannapieco* (ISTAT, Italy), *and T. Catarci* (University of Rome "La Sapienza")

**- SWSCE - An Automatic Semantic Web Service Composition Engine**

*V. Colaianni, F. Patrizi, D. Pozzi, R. Russo, and M. Mecella* (University of Rome "La Sapienza")

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## Track I

**08,30 am – 10,00 am** (AULA MAGNA)  
**The OMG Data Distribution Service for Real-Time Systems *Part I***  
*Angelo Corsaro (PrismTech)*

10,00 am – 10,30 am  
*Coffee Break*

**10,30 am – 12,00 pm** (AULA MAGNA)  
**The OMG Data Distribution Service for Real-Time Systems *Part II***  
*Angelo Corsaro (PrismTech)*

12,00 pm – 01,30 pm  
*Lunch Break*

**01,30 pm – 03,00 pm** (room B1)  
**Event Processing – Architecture and patterns**  
*Opher Etzion (IBM)*

03,00 pm – 03,30 pm  
*Coffee Break*

**03,30 pm – 05,30 pm** (room B1)  
**CEP: Functionality, Technology and Context**  
*Dieter Gawlick (Oracle), Shailendra Mishra (Oracle)*

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## Track II

**08,30 am – 10,00 am** (room B2)

**Events and Streams: Harnessing and Unleashing  
Their Synergy Part I**

*Sharma Chakravarthy* (University of Texas at Arlington, Computer Science and Engineering Department)

10,00 am – 10,30 am

*Coffee Break*

**10,30 am – 12,00 pm** (room B2)

**Events and Streams: Harnessing and Unleashing  
Their Synergy Part II**

*Sharma Chakravarthy* (University of Texas at Arlington, Computer Science and Engineering Department)

**12,00 pm – 01,30 pm** (room B2)

**Interest clustering techniques for efficient event  
routing in large-scale settings**

*Leonardo Querzoni* (Sapienza University of Rome, Department of Computer and Systems Sciences)

**01,30 pm – 03,00 pm** (room B2)

**Large-scale publish-subscribe systems: state of the  
art and research directions Part I**

*Peter Triantafillou* (University of Patras, Department of Computer Engineering and Informatics), *Anne-Marie Kermarrec* (INRIA Rennes, Bretagne Atlantique)

03,00 pm – 03,30 pm  
*Cofee Break*

**03,30 pm – 05,00 pm (room B2)**  
**Large-scale publish-subscribe systems: state of the art and research directions *Part II***  
*Peter Triantafillou* (University of Patras, Department of Computer Engineering and Informatics) ,*Anne-Marie Kermarrec* (INRIA Rennes, Bretagne Atlantique)

05,00 pm – 05,30 pm  
*Cofee Break*

**05,30 pm – 07,00 pm (room B2)**  
**Access Control in Publish/Subscribe Systems**  
*Jean Bacon* (University of Cambridge, Computer Laboratory), *David Eysers* (University of Cambridge, Computer Laboratory), *Jatinder Singh* (University of Cambridge, Computer Laboratory) and *Peter Pietzuch* (Imperial College London, Department of Computing)

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**06,00 pm – 07,00 pm**  
**Registration**

**06,00 pm – 08,30 pm**  
**Welcome Reception**

Wednesday – 2<sup>nd</sup> July

(location: AULA MAGNA)

**08,30 am – 09,00 am**

**Welcome from the Chairs and local authorities**

**09,00 am – 10,00 am**

**Session chair :** *Hans-Arno Jacobsen* (University of Toronto, Canada)

**Keynote: Has the time finally arrived for content-based networking**

***Alexander L. Wolf*** (Imperial College London)

10,00 am – 10,30 am

*Coffee Break*

**10,30 am – 11,25 am**

**Session chair :** *Alejandro P. Buchmann*

(Technische Universität Darmstadt, Germany)

Session 1: **Content-based pub/sub**

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**- Extending Siena to support more expressive and flexible subscriptions**

*John Keeney* (Trinity College Dublin, Ireland), *David Lewis* (Trinity, College Dublin, Ireland), *Dominik Roblek* (Trinity College Dublin, Ireland), *D O'Sullivan* (Trinity College Dublin, Ireland) and *Dominic Jones* (Trinity College Dublin, Ireland)

**- Dynamic Content-based Channels: Meeting in the Middle**

*Sasu Tarkoma* (Helsinki University of Technology, Finland)

**11,25 am – 11,35 am**

**Introduction to demonstration** (*Hinze Annika*)

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**11,35 am – 01,00 pm**

**Session chair :** *Vana Kalogeraki* (University of California, Riverside, USA)

Session 2: **Filtering and synchronization**

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**- Event Dissemination via Group-Aware Stream Filtering**

*Ming Li* (Dartmouth College, USA) and *David Kotz* (Dartmouth College, USA)

**- Bloom Filter Based Routing for Content-Based Publish/Subscribe**

*Zbigniew Jerzak* (TU Dresden, Germany) and *Christof Fetzer* (TU Dresden, Germany)

**- A Synchronization Protocol For Supporting Peer-to-Peer Multiplayer Online Games in Overlay Networks**

*Stefano Ferretti* (University of Bologna, Italy)

01,00 pm – 02,15 pm

*Lunch provided by the conference*

**02,15 pm – 03,45 pm**

**Session chair :** *Opher Etzion* (IBM Haifa Research Lab, Israel)

Session 3: **Event processing in sensor networks and runtime environments**

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**- Event Detection in Sensor Networks for Modern Oil Fields (Industrial paper)**

*Matthew Hill* (IBM Research, Hawthorne, USA), *Yuan-Chi Chang* (IBM Research, Hawthorne, USA), *Vijay Iyengar* (IBM Research, Hawthorne, USA) and *Murray Campbell* (IBM Research, Hawthorne, USA)

**- Event-based Constraints for Sensornet Programming**

*Mert Akdere* (Brown University, USA), *Ugur Cetintemel* (Brown University, USA), *John Jannotti* (Brown University, USA) and *Jie Mao* (Brown University, USA)

**- Advanced Event Processing and Notifications in Service Runtime Environments**

*Anton Michlmayr* (Technical University of Vienna, Austria), *Florian Rosenberg* (Technical University of Vienna, Austria), *Philipp Leitner* (Technical University of Vienna, Austria) and *Schahram Dustdar* (Technical University of Vienna, Austria)

03,45 pm – 04,45 pm

**Session chair :** *Annika Hinze* (University of Waikato, New Zealand)

***Coffee Break and Demonstrations:***

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**Will be in Room** (*second floor, B203*)

**- Service-Oriented Agent Architecture for Financial Customer Relationship Management**

*Wen-chih Tsai* (National Chiao Tung University, Taiwan) and *An-Pin Chen* (National Chiao Tung University, Taiwan)

**- Efficient Uncertainty Management in Complex Event Systems**

*Segev Wasserkrug* (IBM Haifa Research Lab, Israel), *Opher Etzion* (IBM Haifa Research Lab, Israel), *Avigdor Gal* (Technion, Israel Institute of Technology) and *Yulia Turchin* (Technion, Israel Institute of Technology)

**- Service Oriented Architecture for Heterogeneous and Dynamic Sensor Networks**

*J r mie Leguay* (Thales Communications France), *Mario Lopez Ramos* (Thales Communications France), *Kathlyn Jean-Marie* (Thales Communications France) and *Vania Conan* (Thales Communications France)

**- A Framework for Performance Evaluation of Complex Event Processing Systems**

*Marcelo Mendes* (University of Coimbra, Portugal), *Pedro Bizarro* (University of Coimbra, Portugal) and *Paulo Marques* (University of Coimbra, Portugal)



**04,45 pm – 06,15 pm**

**Session chair :** *Avigdor Gal* (Technion , Israel)

Session 4: **Reasoning and complex event detection**

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**- Top-k/w Publish/Subscribe: Finding k Most Relevant Publications in Sliding Time Window w**

*Kresimir Pripuzic* (University of Zagreb, Croatia) and *Ivana Podnar* (University of Zagreb, Croatia), *Zarko* (EPFL, CH) and *Karl Aberer* (EPFL, CH)

**- Unification of Geospatial Reasoning, Temporal Logic, & Social Network Analysis in Event-based Systems (Industrial paper)**

*Jans Aasman* (Franz, Inc., USA) and *Steve Sears* (Franz, Inc., USA)

**- Relative Temporal Constraints in the Rete Algorithm for Complex Event Detection**

*Karen Walzer* (SAP AG, Germany) and *Tino Breddin* (SAP AG, Germany)

**06,20 pm – 07,40 pm**

**Business Meeting**

Thursday – 3<sup>rd</sup> July

(location: AULA MAGNA)

**08,30 am –10,00 am**

**Session chair** : *Peter R. Pietzuch* (Imperial College London, UK)

Session 5: **Availability and reliability of event-based systems**

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**- An Adaptive Approach for Ensuring Reliability in Event Based Middleware**

*Shruti Mahambre* (IIT Bombay, India) and *Umesh Bellur* (IIT Bombay, India)

**- Availability Models for Underlay Aware Overlay Networks**

*Madhu Kumar S. D* (IIT Bombay, India) and *Umesh Bellur* (IIT Bombay, India)

**- Replica Placement for High Availability in Distributed Stream Processing Systems**

*Thomas Repantis* and *Vana Kalogeraki* (University of California, Riverside, USA)

10,00 am – 10,30 am

*Coffee Break*

**10,30 am – 11,55 am**

**Session chair** : *Eliezer Dekel* (IBM Research Laboratory in Haifa, Israel)

Session 6: **Event processing middleware**

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**- WebLogic Event Server: A Lightweight, Modular Application Server for Event Processing (Industrial paper)**

*Seth White* (Bea Systems, USA) , *Alexandre Alves* (Bea Systems, USA) and *David Rorke* (Bea Systems, USA)

**- TOPS – A New Design for Transactions in Publish/Subscribe Middleware**

*Yosef Shatsky (Open University, Israel) and Ehud Gudes (Open University, Israel)*

**- Industry Paper: a scalable grid based application platform for high volumes of transactional event driven processes (Industrial paper)**

*Elena Pasquali (WareLite Ltd, UK) and Daniel Grazioli (WareLite Ltd, UK)*

**11,55 am – 12,05 pm**

**Introduction to demonstration** (*Hinze Annika*)

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**12,05 pm – 01,00 pm**

**Session chair :** *Roberto Baldoni (Sapienza Università di Roma, Italy)*

**Keynote: Towards trustworthy ICT service infrastructures**

***Jacques Bus*** (Head of Unit, - Security (ICT Programme)  
DG Information Society and Media, European Commission)

01,00 pm – 02,15 pm

*Lunch provided by the conference*

**02,15 pm – 03,45 pm**

**Panel Discussion: Security issues in Event Based Infrastructures as seen from European Technology Platforms**

**Chair: Jacques Bus** (Head of Unit, - Security (ICT Programme) DG Information Society and Media, European Commission)

Participants:

**Enrico Angori, ELSAGDATAMAT, Finmeccanica (ETP Artemis)**

**Reijo Savola, VTT, Finland (ETP eMobility)**

**Mike Surridge, IT Innovation, UK (ETP NEM)**

**Pascal Bisson, Thales, France (ETP NESSI)**

Organizers : *James Clarke* (Waterford Institute of Technology, Ireland), *Alkis Konstantellos* (EU commission), *Angelo Marino* (EU commission), *Thomas Skordas* (EU commission)

**03,45 pm – 04,45 pm**

**Session chair :** *Annika Hinze* (University of Waikato, New Zealand)

**Coffee Break and Demonstrations:**

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**Will be in Room** (*second floor, B203*)

**- BFSiena: a Communication Substrate for StreamMine**

*Zbigniew Jerzak* (TU Dresden, Germany) and *Christof Fetzer* (TU Dresden, Germany)

**- Publish/Subscribe in the VRESCo SOA Runtime**

*A. Michlmayr* (Technical University of Vienna, Austria), *P. Leitner* (Technical University of Vienna, Austria), *F. Rosenberg* (Technical University of Vienna, Austria) and *S. Dustdar* (Technical University of Vienna, Austria)

**- Knowledge-based Networking**

*John Keeney* (Knowledge & Data Engineering Group (KDEG) – Trinity College Dublin, Ireland), *Dominic Jones* (Knowledge & Data Engineering Group (KDEG) – Trinity College Dublin, Ireland), *Dominik Roblek* (Trinity College Dublin, Ireland), *David Lewis* (Knowledge & Data Engineering Group (KDEG) – Trinity College Dublin, Ireland), *Declan O’Sullivan* (Knowledge & Data Engineering Group (KDEG) – Trinity College Dublin, Ireland)

**- Fuego Toolkit: A Modular Framework for Content-based Routing**

*Sasu Tarkoma* (Helsinki University of Technology, Finland)

**04,45 pm – 06,15 pm**

**Session chair :** *Vivien Quèma* (CNRS INRIA Rhone-Alpes Grenoble, France)

**Fast Abstract:**

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**-Towards Data Driven Declarative Networking in Delay Tolerant Networks**

*Eiko Yoneki* (University of Cambridge, UK)

**-Publish/Subscribe-based Cluster and Routing Algorithm for Actuator and Sensor Networks**

*Jan Hendrik Schönherr* (Communication and Operating Systems Group, Germany), *Helge Parzyjegl* (Berlin Institute of Technology, Germany), *Gero Mühl* (Berlin Institute of Technology, Germany)

**- BCE-Processor: Boost Up Event Processing for Large-scale Sensor-rich Ubiquitous Environment**

*Jinwon Lee* (Computer Science, KAIST, South Korea), *Youngki Lee* (Computer Science, KAIST, South Korea), *Seungwoo Kang* (Computer Science, KAIST, South Korea), *SangJeong Lee* (Computer Science, KAIST, South Korea), *Junehwa Song* (Computer Science, KAIST, South Korea)

**- Context-Dependent Event Detection in Sensor Networks**

*Scarlet Schwiderski-Grosche* (Royal Holloway, University of London, UK)

**- On the Challenges in Event Delivery**

*Haggai Roitman* (Technion, Israel), *Avigdor Gal* (Technion, Israel), *Louisa Raschid* (University of Maryland, USA)

**- Combining Discriminant Analysis and Neural Networks for Fraud Detection on the Base of Complex Event Processing**

*Alexander Widder* (simple fact AG, Germany), *Rainer v. Ammon* (Centrum für Informations-Technologie Transfer GmbH, Germany), *Philippe Schaeffer* (TÜV Rheinland Secure IT GmbH, Germany), *Christian Wolff* (Media Computing, University of Regensburg, Germany)

**- Event-Driven Business Process Management**

*Christian Wolff* (Universität Regensburg, Germany), *Rainer v. Ammon* (Centrum für Informations-Technologie Transfer GmbH, Germany), *Christoph Emmersberger* (Centrum für Informations-Technologie Transfer GmbH, Germany), *Torsten Greiner* (Teambank AG Nürnberg, Germany), *Adrian Paschke* (Technical University Dresden BioTec), *Florian Springer* (Centrum für Informations-Technologie Transfer GmbH, Germany)

**- Stratified implementation of event processing network**

*Ayelet Biger* (One Software Technologies), *Opher Etzion* (IBM Haifa, Israel), *Yuri Rabinovich* (IBM Haifa, Israel)

**- Event-based integration using on-the-fly matching**

*Anders Moen Hagalisletto* (Birkeland Innovation, Norwegian Computing Center), *Steinar Kristoffersen* (Østfold University College, Halden)

**- Policy-based Management of Semantic Clustering**

*Dominic Jones* (Knowledge & Data Engineering Group (KDEG) – Trinity College Dublin, Ireland), *John Keeney* (Knowledge & Data Engineering Group (KDEG) – Trinity College Dublin, Ireland), *David Lewis* (Knowledge & Data Engineering Group (KDEG) – Trinity College Dublin, Ireland), *Declan O'Sullivan* (Knowledge & Data Engineering Group (KDEG) – Trinity College Dublin, Ireland)

**- Design Patterns for Complex Event Processing**

*Adrian Paschke* (Technical University Dresden, Germany)

**07,00 pm - Social Event - "Jazz Quartet"**

The DEBS Banquet will be held at the Cloister of the School of Engineering of the University of Rome "La Sapienza".

Before the Banquet there will be a Jazz Concert in the "**Sala del Chiostro**" attached to the cloister.

*(See page 43 for details on the concert program)*

**08,30 am – 10,00 am**

**Session chair :** *Gero Mühl* (Technische Universität Berlin, Germany)

**Fast Abstract:**

**-Event Diffusion in Wireless Mesh Networks using Random Linear Network Coding**

*Roberto Beraldi* (DIS - Università di Roma "La Sapienza"), *Aurelio Forese* (DIS - Università di Roma "La Sapienza"), *Hussein M. Alnuweiri* (Texas A&M University, Qatar)

**-Discovery services in the future generation of mobile networks**

*Younès EL BOUZEKRI EL IDRISSE* (ENSIAS, Mohamed V University, Morocco)

**- A Suitable Programming Model for e-Science Workflows?**

*Beth Plale* (Indiana University, USA), *Chathura Herath* (Indiana University, USA), *Rahul Ramachandran* (University of Alabama Huntsville USA)

**-Experimental Evaluation of Ubiquitous Systems. Why and how to reduce WiFi communication range**

*Marc-Olivier Killijian* (LAAS-CNRS Université de Toulouse, France), *David Powell* (LAAS-CNRS Université de Toulouse, France), *M. Roy* (LAAS-CNRS Université de Toulouse, France) and *G. Séverac* (LAAS-CNRS Université de Toulouse, France)

**-FADA: Formalisms and Algorithms for Resilient Services Design in Ambient Systems**

*Matthieu Roy* (LAAS-CNRS Université de Toulouse, France), *Marc-Olivier Killijian* (LAAS-CNRS Université de Toulouse, France), *Leonardo Querzoni* (University of Roma, Italy), *Sara Tucci Piergiovanni* (University of Roma, Italy), *Silvia Bonomi* (University of Roma, Italy), *François Bonnet* (IRISA, France)

**-Spatio-Temporal Reasoning with Composite Events Mobile Systems**

*Scarlet Schwiderski-Grosche* (Royal Holloway, University of London, UK)

**-CAPS: Content-bAsed Publish/Subscribe services for perr-to-peer systems**

*Jordi Pujol Ahulló* (Universitat Rovira i Virgili, Spain)

**-Gravity: An Interest-Aware Publish/Subscribe System Based on Structured Overlays**

*Sarunas Girdzijauskas* (EPFL, Switzerland), *Gregory Chockler* (IBM Research, Israel), *Roie Melamed* (IBM Research, Israel), *Yoav Tock* (IBM Research, Israel)

**-On Context-Aware Publish-Subscribe**

*Gianpaolo Cugola* (Politecnico di Milano, Italy), *Matteo Migliavacca* (Politecnico di Milano, Italy)

**-MAMBO: Membership-Aware Multicast with Bushiness Optimisation**

*Lu Fan* (University,Edinburgh, UK),*Phil Trinder* (University,Edinburgh,UK),  
*Hamish Taylor* (University,Edinburgh,UK)

10,00 am – 10,30 am

*Coffee Break*

**10,30 am – 11,30 am**

**Session chair :** *Sara Tucci Piergiovanni* (University of Roma, Italy)

**Keynote: Meeting the Challenges of Mission-Critical Distributed Event-Based Systems with QoS-enabled Middleware and Model Driven Engineering**

***Douglas C. Schmidt*** (Vanderbilt University)



**11,30 am – 1,00 pm**

**Session chair :** *Beth A. Plale* (Indiana University, USA)

Session 7: **Modeling event based systems**

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**- A Metamodel for Distributed Event Based Systems**

*Rolando Blanco* (David R. Cheriton School of Computer Science University of Waterloo, Canada), *Jun Wang* (David R. Cheriton School of Computer Science University of Waterloo, Canada) and *Paulo Alencar* (David R. Cheriton School of Computer Science University of Waterloo, Canada)

**- Distributed Automatic Service Composition**

*Songlin Hu* (Chinese Academy of Sciences, China), *Vinod Muthusamy* (University of Toronto, Canada) and *Hans-Arno Jacobsen* (University of Toronto, Canada)

**- Semantics of Dynamic Structure Event-Based Systems**

*Fernando Barros* (Universidade de Coimbra, Portugal)

1,00 pm – 2,15 pm

*Lunch provided by the conference*

**2,15 pm – 4,00 pm**

**Session chair :** *Seth White* (Bea Systems, USA)

Session 8: **Complex event processing and streaming**

**queries**

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**- Complex Event Processing Over Uncertain Data**

*Segev Wasserkrug* (IBM Haifa Research Lab, Israel), *Avigdor Gal* (Technion, Israel Institute of Technology), *Yulia Turchin* (Technion, Israel Institute of Technology) and *Opher Etzion* (IBM Haifa Research Lab, Israel)

**- Speculative Out-Of-Order Event Processing with Software Transaction Memory**

*Andrey Brito* (TU Dresden, Germany), *Christof Fetzer* (TU Dresden, Germany), *Heiko Sturzrehm* (University of Neuchatel, CH) and *Pascal Felber* (University of Neuchatel, CH)

**- Real-Time, Load-Adaptive Processing of Continuous Queries Over Data Streams**

*Dhananjay Kulkarni* (Boston University, USA) and *Chinya Ravishankar* (University of California, Riverside, USA)

**- On Static Determination of Temporal Relevance for Incremental Evaluation of Complex Event Queries**

*François Bry* (University of Munich, Germany) and *Michael Eckert* (University of Munich, Germany)

**4,00 pm – 4,45 pm**

**Conclusion from the Chairs :**

*Roberto Baldoni*, Sapienza Università di Roma, Italy  
*Hans-Arno Jacobsen*, University of Toronto, Canada

## Keynotes Bio-sketch

**Alexander L. Wolf** - Imperial College London

***Has the time finally arrived for content-based networking?***

July 2nd, 2008



Alexander L. Wolf is a Professor in the Department of Computing at Imperial College London, UK, where he is Head of the Distributed Software Engineering research section. Prior to that he held the C.V. Schelke Chair in the College of Engineering and was a Professor of Computer Science at the University of Colorado at Boulder, USA. And prior to that he was a Member of the Technical Staff at AT&T Bell Laboratories in Murray Hill, New Jersey. Dr. Wolf received the Ph.D. degree in Computer Science from the University of Massachusetts at Amherst, USA. His interests are in the discovery of principles and development of technologies to support the engineering of large, complex software systems. He has published in a variety of areas, including software engineering, databases, distributed systems, and networking. Dr. Wolf served as Chair of the Association of Computing Machinery (ACM) Special Interest Group on Software Engineering (SIGSOFT). He is currently a member of the ACM Council, the governing body of the 65000-member organization, and an ACM Distinguished Speaker. Dr. Wolf serves on the editorial board of the IEEE Transactions on Software Engineering, and previously served on the editorial board of the ACM Transactions on Software Engineering and Methodology. Dr. Wolf is a Fellow of the ACM and holder of a UK Royal Society-Wolfson Research Merit Award.

### **Abstract:**

The classical view of networks, particularly what we think of as "The Internet", is undergoing significant change. Fundamental notions, such as the end-to-end principle, are being questioned. Overlay networks, which were originally conceived as convenient virtualizations, are becoming the normal manner in which networked systems and applications are deployed. This changing view of networks is being driven by the evolving nature of today's large-scale communication. Content-based networking, a multicast service in which the traditional network address is replaced with a predicate

over message content, met with serious resistance when we first introduced it in 2001, mainly because it was hard to conceive of how it could, indeed should, be deployed at a large scale. But that was before the recent rethinking of the basic network design. This talk examines content-based networking in this new light.

**Jacques Bus** - Head of Unit, - Security (ICT Programme) DG  
Information Society and Media, European Commission  
***Towards trustworthy ICT service infrastructures***  
July 3rd, 2008



Jacques Bus studied Mathematics at the University of Amsterdam and obtained his PhD with a thesis in Numerical Mathematics. He worked as a researcher at CWI (Amsterdam) for 15 years. In 1988 he joined the European Commission services in the Unit for Computer Integrated Manufacturing in the Esprit programme. Since then he has been responsible for programme wide operational and organisational affairs in the Esprit and IST programme and for Informatics support in DG Information Society. From June 2000 till March 2004, Jacques was Head of the Unit Software Technologies and Distributed Systems in the IST programme. From March 2004 he has taken responsibilities for the area of Trust and Security in the ICT Programme, which includes Network and Information System Security, Trustworthy Computing and DRM, Biometrics, Identity management and Critical Information Infrastructure Protection. During 2003 and 2004 he was instrumental in the development of the Security Research Programme that started under FP7 in the EU.

**Abstract:**

The rapid growth and evolution of ICT is creating a globally pervasive environment and a world where end-users are able to exploit services anywhere, anytime and on any device. Every day new, innovative services and service models appear. Many of these new services are dynamically created through customisation and composition of existing ones within integration frameworks which provide their discovery, management and provision.

Future ICT service systems will be at least one level of magnitude more complex and larger than today's ones, more dynamically evolving and necessitating coordination of multiple intervening organisations. Furthermore, the functioning of future software systems will be based on loosely coupled components: groups of different software components that function independently will be assembled dynamically, at run-time, to provide the requested services. The move towards dynamically networked end-to-end services with control spanning across multiple, independent networked domains, affects the predictability and trustworthiness of their execution.

In the future Internet we must have built-in trustworthiness, security and reliability of services and applications delivered to the users. It is therefore essential to consider frameworks and architectures that can handle these functionalities in scalable and dynamically evolving environments. In such environments we need to address fundamental issues like:

- How to guarantee their security? How should secure software engineering approaches evolve to accommodate both security and dependability in such environments and the ability to assess, enforce and manage the end-to-end runtime system security properties? How to distinguish between legitimate and malicious event triggered service instantiations?
- What about trust architectures, trust models and trusted relations between actors and users intervening in such environments, where event distribution is dynamically spanning several trusted and sometimes un-trusted domains and organisations?
- How to convey the notion of trustworthiness of such environments to the end-users?

These and possibly many others are some of the challenges that will have to be addressed for designing and building future trustworthy and privacy-protecting ICT service infrastructures. Dealing with these challenges, would require bringing together inter-disciplinary research constituencies from computer science (security, dependability and trust, software, services, communications and computing), socio-economic sciences and end users. The FP7-ICT Work programme for 2009-2010, actually under preparation, will provide concrete opportunities for such multi-disciplinary approach.

**Douglas C. Schmidt** - Vanderbilt University  
***Meeting the Challenges of Mission-Critical Distributed  
Event-Based Systems with QoS-enabled Middleware and  
Model Driven Engineering***

July 4th, 2008



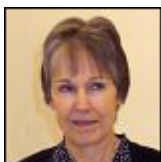
Dr. Douglas C. Schmidt is a Professor of Computer Science and Associate Chair of the Computer Science and Engineering program at Vanderbilt University. He has published 9 books and over 400 technical papers that cover a range of research topics, including patterns, optimization techniques, and empirical analyses of software frameworks and domain-specific modeling environments that facilitate the development of distributed real-time and embedded (DRE) middleware and applications running over high-speed networks and embedded system interconnects. In addition to his academic research and government service, Dr. Schmidt has over fifteen years of experience leading the development of ACE, TAO, CIAO, and CoSMIC, which are widely used, open-source DRE middleware frameworks and model-driven tools that contain a rich set of components and domain-specific languages that implement patterns and product-line architectures for high-performance DRE systems.

**Abstract:**

Mission-critical distributed event-based systems are increasingly characterized by many platforms and operators connected through heterogeneous networks. The networks, operating systems, middleware, and applications that populate these systems must be configured properly to deliver the required quality-of-service (QoS), including low/bounded latency, high scalability, and resilience to malicious attacks and communication failures. Solutions that rely on conventional SOA technologies do not yet support the QoS requirements of mission-critical systems. This presentation describes how QoS-enabled middleware can meet the performance, scalability, and security requirements of mission-critical distributed event-based systems. The integration of these capabilities is facilitated by Model-Driven Engineering (MDE) tools that greatly enhance developer productivity and overall system quality, while delivering advanced deployment and evolution capabilities to standards-/COTS-based applications and middleware platforms. MDE tools shield developers from the complexities of heterogeneous environments and enable them to program QoS-enabled middleware in terms of their design intent, rather than low-level system details.

## Tutorial Author Bio-sketch

### Access Control in Publish/Subscribe Systems

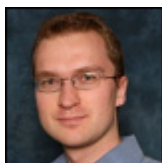


**Jean Bacon**, Professor of Distributed Systems, leads the Opera research group, the focus being large-scale, multi-domain, secure distributed systems. Ongoing themes include event-based communication, role-based access control and policy-driven systems. She is PI on four grants in Cambridge in the area of the tutorial:EDSAC21, TIME-EACM, CareGrid, and Smart Flow (soon to start). See <http://www.cl.cam.ac.uk/research/srg/opera/>. She is a

Fellow of the BCS and IEEE, founding EIC of IEEE Distributed Systems Online 2000-2007, and an IEEE Computer Society Board of Governors member 2002-2007.



**David Eyers** is a post-doctoral research associate with interests in event-driven systems, distributed access control, networking, and policy representation and management. He has worked within the EDSAC21 and CareGrid grants, and has been involved with the Smart Flow grant since its inception. He is an experienced lecturer, and has led many small-group teaching sessions. He serves on a number of conference program committees.



**Peter Pietzuch** is a lecturer in the Distributed Software Engineering (DSE) group with the Department of Computing at Imperial College London. His work spans distributed systems, peer-to-peer computing, event-based systems, networking and databases. His main research interests are new abstractions and infrastructures for design and implementation of adaptive Internet-scale applications and addressing this area's unique data management challenges. Before joining Imperial, he held a Post-doctoral Research Fellowship at Harvard University. He has co-authored a book on distributed event-based systems.



**Jatinder Singh** is a PhD student on the CareGrid project, whose research concerns information control in healthcare environments. He has spent time working both in academia and in industry, and has many years' student supervision experience. His publications directly match the subject of this tutorial.

## CEP: Functionality, Technology and Context



**Dieter Gawlick** is architect at Oracle. He architected the first messaging system fully integrated into a database and was a key contributor to Oracle's integration and sensor technologies. Dieter's current focus is leveraging and evolving database technologies to accelerate the evolution of event processing. Additionally, Dieter works on database support for long running transactions. Dieter was a key contributor in the development of high end database and transaction systems.



**Shailendra Mishra** is Director of development for Complex Event processing at Oracle. He has worked in several areas in Distributed Databases contributing heavily to the Design, Development and Architecture of Oracle AQ and Data Streams. His current interests include Event Data Streams, Pattern recognition, Approximate Query processing and Data Mining in Event Data Streams.

## Large-scale publish-subscribe systems: state of the art and research directions



**Peter Triantafillou** is a Professor with the Department of Computer Engineering and Informatics at the University of Patras, being the Director of the Software Division and the Director of the Network-Centric Information Systems laboratory. Peter received the Ph.D. degree from the University of Waterloo in 1991. He has also held professorial positions at Simon Fraser University and at the Technical University of Crete. Peter was on sabbatical leave with the Max -Planck Institute for Informatics in 2004 - 2005.



**Anne-Marie Kermarrec** is a senior researcher with INRIA, Rennes, France since 2004 where she leads the ASAP (As Scalable As Possible) research group focusing on large-scale dynamic distributed systems. Her current main research area is on peer to peer overlays, search in large-scale distributed systems, and gossip-based computing. Before joining INRIA, she was a researcher with Microsoft Research in Cambridge (2000-2004), and with Vrije Universiteit in Amsterdam (1996-97).



## Interest clustering techniques for efficient event routing in large-scale settings



**Leonardo Querzoni** is a post-doc researcher in Computer Engineering at Sapienza Università di Roma. He obtained his PhD from the same university in 2007. His research interests are in the area of distributed systems, peer-to-peer applications, event-driven architectures and mobile and sensor networks. His work is currently focussed on problems related to efficient event dissemination for large-scale distributed publish/subscribe systems.

He is active in various industrial research projects as well as projects funded by the EC, and regularly serves as a reviewer for various conferences and journals in the distributed systems area.

## Events and Streams: Harnessing and Unleashing Their Synergy



**Sharma Chakravarthy** is Professor of Computer and Engineering Department at The University of Texas at Arlington, Texas. He established the Information Technology Laboratory at UT Arlington in Jan 2000 and currently heads it. Sharma Chakravarthy has also established the NSF funded Distributed and Parallel Computing Cluster (DPCC@UTA) at UT Arlington in 2003. He is the recipient of the college level "Excellence in Research" award in 2006,

university level "Creative Outstanding Researcher" award in 2003 and the department level senior outstanding researcher award in 2002.

## The OMG Data Distribution Service for Real-Time Systems



**Angelo Corsaro** is currently affiliated with PrismTech where he leads OpenSplice DDS product, addressing technology positioning, planning, evolution, and evangelism, as well as extending the technology adoption to new application domains and verticals. He is also responsible for strategic standardization at the Object Management Group (OMG), where is co-chair of the Data Distribution Service (DDS) Special Interest Group, and of the Real-Time Embedded and Specialized Services Task Force. Angelo received a Ph.D. and a M.S. in Computer Science from the Washington University in St. Louis, and a Laurea Magna cum Laude in Computer Engineering from the University of Catania, Italy.

## Event Processing - Architecture and patterns



**Opher Etzion** is IBM Senior Technical Staff Member, and Event Processing Scientific Leader in IBM Haifa Research Lab, Previously he has been lead architect of event processing technology in IBM Websphere, and a Senior Manager in IBM Research division, managed a department that has performed one of the pioneering projects that shaped the area of "complex event processing". He is also the chair of EPTS (Event Processing Technical Society). In parallel he is also an adjunct professor at the Technion - Israel Institute of Technology.

## Social Event - *"Jazz Quartet"*

### *Jazz Quartet program:*

J. Tizol-D. Ellington  
*"Caravan"*

W. Shorter  
*"Footprints"*

L. Marinaro  
*"A night in Rome"*

**Luigi Marinaro**  
Marimba e Vibraphono

S. Rollins  
*"St. Thomas"*

**Andrea Colella**  
Contrabass

L. Marinaro  
*"Angelopoli"*

**Antonio Del Sordo**  
Drums

L. Marinaro  
*"Seven"*

**Donato Tamarazzo**  
Percussion instrument

A. Colella  
*"17 Dicembre"*

D. Gillespie  
*"A night in Tunisia"*

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