

## Preface

Welcome to MMNS 2003.

Multimedia services over IP networks are proliferating at an enormous speed. There is also increasing demand for solutions that provide assured levels of service quality. All of these require novel paradigms, models, and architectures for realizing integrated end-to-end service management rather than managing network elements in isolation. Providing scalable Quality of Service (QoS) while maintaining fairness, along with secure and optimal network resource management, are key challenges for the future Internet. These challenges apply to both fixed and wireless networks.

This book contains all of the papers presented at the 6th IFIP/IEEE International Conference on Management of Multimedia Networks and Services (MMNS 2003) hosted by The Queen's University of Belfast, Northern Ireland, September 7–10, 2003. MMNS 2003 follows the successful conferences held in Santa Barbara (2002), Chicago (2001), Fortaleza, Brazil (2000), Paris (1998), and Montreal (1997). MMNS uses single-track presentations, which provide an intimate setting for discussion and debate. The conference is known for its high quality papers from various research communities. In just six years, MMNS has established itself as one of the premier conferences focusing on the management of multimedia networks and services. The conference objective is to bring together researchers working in all facets of network and service management as applied to broadband networks and multimedia services. MMNS deals with all aspects of designing, developing, and deploying networked multimedia systems, and it serves as a forum for the dissemination of state-of-the-art research and development results. MMNS also includes panel sessions in which experts offer their observations and opinions about current hot topics.

This year MMNS was augmented by a workshop on End-to-End Monitoring Techniques and Services (E2EMON). This one-day workshop offered a unique opportunity for researchers in this area to exchange ideas and experience that foster the development of generic and custom monitoring for next-generation Internet services. Many thanks are due to Professor Ehab Al-Shaer for his sterling efforts in organizing this.

The success of MMNS ultimately depends on the committee members and on the quality of the submissions. As in previous years, we were fortunate to have a large number of enthusiastic members who worked tirelessly to ensure that we had a high quality conference. We thank all the authors who submitted papers, and also the members of the program committee and the additional reviewers who carefully reviewed the submissions. Each paper submitted was reviewed by at least three reviewers, and conflicting reviews were extensively discussed by the program committee. This procedure has once again resulted in a varied and high quality program completed by the excellent tutorials and keynotes presentations,

thanks to John Strassner, Petre Dini, and George N. Aggélou for the tutorials and Ian F. Akyildiz and Derek McAuley for the keynotes.

As conference chairs, it was a pleasure to work with such a dedicated and conscientious program committee.

This year once again saw the continued support of IFIP and IEEE. In addition we would like to acknowledge the financial assistance provided by Invest Northern Ireland, which sponsored the conference banquet. We also acknowledge the cooperation of Alfred Hofmann of Springer-Verlag, which has now been the official publisher for the last three conferences. We would like to acknowledge the valuable support and guidance provided by the steering committee: Ehab Al-Shaer, Giovanni Pacifici, Guy Pujolle, and Raouf Boutaba, and to thank the previous conference chairs for the benefit of their experience. Also, thanks to Massum Hassen for his help in organizing the tutorials, and Ahmed Mehaoua, John Vicente, and Tham Chen Kong for helping to advertise the conference and make it a successful event. Finally, we thank all the staff who assisted both at Queen's University Belfast, UK, and at Evry University, France. Particular thanks are due to Qiang Gu, Danielo Gomes, Emi Garcia, Mauro Fonseca, and not least to Paula Matthews. The application of her considerable experience, coupled with her unbounded enthusiasm and professionalism, assured a much more efficient conference than would otherwise have been possible.

For those of you who attended the conference we hope you found this year's MMNS a valuable experience, and were able to savour the technical presentations, renew old friendships, and hopefully make new ones. We hope everyone enjoyed their stay in Belfast.

September 2003

Alan Marshall, Nazim Agoulmine

# **MMNS 2003 Organizing Committee**

## **Executive Committee**

### **Conference Chairs**

Alan Marshall                    Queen's University of Belfast, UK  
Nazim Agoulmine                University of Evry, France

### **Steering Committee**

Ehab Al-Shaer                 DePaul University, USA  
Giovanni Pacifici              IBM Research, USA  
Guy Pujolle                    University Pierre & Marie Curie, France  
Raouf Boutaba                 University of Waterloo, Canada

### **Tutorial Chair**

Masum Hassen                   Cisco System, Inc., USA

### **Publicity Chairs**

Ahmed Mehaoua                University of Versailles, France  
John Vicente                   Intel Corporation, USA  
Tham Chen Khong               National Univ. of Singapore, Singapore

### **Proceedings Chairs**

Emiliano Garcia                Queen's University of Belfast, UK  
Mauro Fonseca                 University Pierre & Marie Curie, France

### **Web Chairs**

Qiang Gu                        Queen's University of Belfast, UK  
Danielo Gomes                 University of Evry, France

## Program Committee

Abdelhakim Hafid	University of Montréal, Canada
Ahmed Helmy	Univ. of Southern California, USA
Ahmed Karmouch	University of Ottawa, Canada
Alaa Youssef	IBM Research, USA
Alan Marshall	Queen's University Belfast, UK
Alexander Clemm	Cisco Systems, Inc., USA
Ana Rosa Cavalli	INT, France
Andrew Campbell	Columbia University, USA
Bert-Jan van Beijnum	University of Twente, The Netherlands
Burkhard Stiller	UniBw Munich / ETH Zurich, Switzerland
Chien-Chung Shen	University of Delaware, USA
David Hutchison	Lancaster University, UK
Dominique Gaiti	Univ. of Technology of Troyes, France
Ed Perry	HP Labs, USA
Gautam Kar	IBM Research, USA
Gerard Parr	University of Ulster, UK
Go Hasegawa	Osaka University, Japan
Greg Brewster	DePaul University, USA
Hanan Lutfiyya	University of Western Ontario, Canada
John Strassner	Intelliden Corporation, USA
Jose M. Nogueira	University Minas Gerais, Brazil
Jose Neuman de Souza	Universidade Federal do Ceará, Brazil
Kevin Almeroth	UC-Santa Barbara, USA
Laurie Cuthbert	Queen Mary, University of London, UK
Lundy Lewis	APRISMA Corporation, USA
Michael Tchicholz	Fokus Fraunhofer, Germany
Mohamed Bettaz	Philadelphia Univ., Jordan
Mohammed Atiquzzaman	University of Oklahoma, USA
Mohammed Erradi	ENSIAS, Morocco
Murat Yuksel	Rensselaer Polytechnic Inst., Germany
Nazim Agoulmine	University of Evry, France
Nikos Anerousis	Voicemate Inc., USA
Petre Dini	Cisco Systems/Concordia Univ., USA/Canada
Puneet Sharma	HP Labs, USA
Ralf Steinmetz	Darmstadt Univ. of Tech., Germany
Russ Clark	Georgia Inst. of Technology, USA
Songwu Lu	UC-Los Angeles, USA
Supratik Bhattacharrya	Sprint ATL, USA
Willie Donnelly	Waterford Inst. of Technology, Ireland

## Additional Reviewers

Nadjib Achir	University of Paris VI, France
Ehab Al-Shaer	DePaul University, USA
Marcelo Amorim	University of Paris VI, France
Joaquim Celestino	UECE-LARCES, Brazil
Belkacem Daheb	LIP6, France
Mauro Fonseca	LIP6, France
Yacine Ghamri	LIP6, France
Danielo Gomes	University of Evry, France
Masum Hasan	Cisco Systems, Inc., USA
Joseph Markwei	Telelink ventures, UK
Ahmed Mehaoua	University of Versailles, France
Anelise Munaretto	University of Paris VI, France
Manuel Nunez	University of Madrid, Spain
Clark Russ	Georgia Institute of Tech., USA
Sidi-Mohamed Senouci	University of Paris 6, France
Malgorzata Steinder	IBM Research, USA
Asser Tantawi	IBM T.J. Watson Research Center, USA
Chen-Khong Tham	National University of Singapore, Singapore
John Vicente	Intel Corporation, USA
Fawaz Wissam	University of Paris Nord, France