
Editorial

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Biographical notes: Eduardo Cerqueira received the BS Degree in Data Processing Technology from the University of Amazon in 2000, MS in Computer Science from the Federal University of Santa Catarina in 2003, Brazil and PhD in Informatics Engineering from the University of Coimbra (UC) in 2008. He is an Invited Auxiliary Professor at the Department of Informatics Engineering, UC. His research interests include quality of service, quality of experience, mobility and multimedia. His publications include one book, four patents and over than 40 papers in national and international refereed journals/conferences. He participated in European Research Projects such as Q3M, SAPRA and CONTENT.

Thomas Michael Bohnert (<http://tmb.nginet.de>) is a Senior Research Scientist at SAP Research. He received a Diploma Engineer Degree in 2005 and is expected to receive his PhD in spring 2009 from University of Coimbra. His interests are enabling infrastructures for business applications. Within SAP this covers Distributed Systems for Telematic Applications and Business Intelligence. He also continues research in QoS/QoE, WiMAX, and VoIP. He founded the *IEEE Broadband Wireless Access Workshop* (www.bwaws.org) and co-founded the *Future Multimedia Networking Workshop*. His works are published in several books, journals and conferences. He was GE for ELSEVIER Computer Communications and EURASIP Wireless Communications.

Fernando Boavida received his PhD in Informatics Engineering in 1990, and he is a full Professor and President of the Department of Informatics Engineering of the University of Coimbra. His main research interests are scalable networking and mobile and ambient networking. He was the Chairman of the Program Committee of QofIS'2001, IDMS-PROMS'2002, Networking'2006, WWIC'2007 and FMN'2008 international conferences/workshops. His publications include six book, five book chapters, and around 35 papers in national conferences and 104 papers in international refereed journals and conferences proceedings. He participated in European initiatives such as RARE, EWOS, COST263, E-NET, EuQoS, Weird, OpenNet and CONTENT.

Real-time multimedia services are contributing to enhance our life experience and are expected to be among the most important applications in future generation networks. The management of real-time multimedia services is an important key to attract and keep customers, while increasing profits to content providers. The efficient delivery and deployment of real-time multimedia services over emerging diverse and heterogeneous wired and

wireless systems is a challenging research objective. The interoperability of applications, transport and network protocols, as well as, the demand for improved Quality of Service (QoS), Quality of Experience (QoE), and seamless mobility control creates a challenging study field and also possibilities for research of novel communication protocols, architectures and methods towards Future Multimedia Networking Systems.

In 2008, the First International Future Multimedia Networking (FMN 2008) workshop was organised in Cardiff, Wales, UK, together with the Next Generation Mobile Applications, Services and Technologies (NGMAST 2008) conference. FMN 2008 achieved exceptional success from the very beginning by receiving 72 submissions from 31 countries. FMN 2008 produced a high quality technical peer reviewed programme with an acceptance rate around 25%. FMN 2008 addressed important aspects of future multimedia systems, such as novel protocol and architectures for multimedia services, multimedia in personal, sensor and ad-hoc networks, QoS and QoE management in multimedia networks, and multimedia in peer-to-peer networks.

Based on the FMN 2008 outcome and on the need to deepen certain topics from a more focused perspective, FMN 2008 has accepted the kind invitation of the *International Journal of Internet Protocol Technology* (IJIPT) to prepare a special issue. The authors of selected papers were asked to produce extended and updated versions of their papers and to submit them to a selection process for publication in this Special Issue. The first volume of this Special Issue has papers that cover multimedia distribution in wired and/or wireless networks and multimedia in peer-to-peer networks.

In the paper 'Towards seamless source mobility in SSM design and evaluation of the Tree Morphing protocol', the authors present a design and discuss an extensive evaluation of the Tree Morphing Protocol that performs an adaptive tree management to support seamless handovers for mobile Source Specific Multicast (SSM) sources. The proposed solution is an important step to optimise the distribution of multimedia services in mobile environment.

The paper 'Comparative analysis of routing protocols for VoIP in a Wireless Mesh Backbone: a user perspective' provides a deep analysis of the impact of widely used wireless mesh routing protocols according to the user perspective. The distribution Voice over IP (VoIP) services with Ad Hoc On-Demand Distance Vector (AODV), Optimise Link State Routing (OLSR) and Hybrid Wireless Mesh Protocol (HWMP) protocols were evaluated. The results presented that AODV could satisfy more users than OLSR and HWMP.

The delivery of highly available and robust service offerings is a critical objective for Service Providers. With this goal in mind, the paper 'Enhancing the serviceability of IMS-based multimedia services: preventing

core service failures' introduces a solution to enhance the robustness of IP Multimedia Subsystem-based architectures without assuming a vertically integrated system. This paper does not make any assumption on the nature of the service which is offered through IMS. Nevertheless, a focus is put on session-based services such as Audio/Video Telephony.

Multimedia in Peer-to-Peer (P2P) networks has been an active research area during the past few years. The paper 'Enabling global multimedia distributed services based on hierarchical DHT overlay networks' defines a simple way to interconnect different domains using P2P technology following the IETF P2PSIP WG approach. The main objective of this paper is to provide connectivity between users of different domains and allow placing decentralised multimedia services where they can be provided most effectively. The proposed approach was analysed and validated via simulation using the case study of a Hierarchical Kademlia overlay network.

The paper 'Suffix caching: an approach to ensure data availability in P2P streaming systems' describes a data unavailability problem that arises from unpredictable departure of peers in P2P streaming systems and highlights the use of a cache scheme to reduce the effects of peer disconnection on data availability. The main contributions of the paper are the following: the development of an efficient cache allocation policy that balances the caching load amongst the peers and the adaptive suffix caching scheme that dynamically adjusts the caching workload according to the dynamic nature of the DVC and the variable system workload.

The paper 'Playback delay in mesh-based Peer-to-Peer systems with random packet forwarding and transmission capacity limitation' proposes an analytic framework to assess the performance of scheduling algorithms for mesh based Peer-to-Peer (P2P) streaming systems. The analytic framework was applied to derive performance measures for two scheduling solutions and concluded that simple random scheduling at the forwarding peers is a good candidate for mesh-based P2P streaming systems.

We wish to thank all the authors for their great work and for considering the *International Journal of Internet Protocol Technology* for submitting their papers. Special thanks to Professor Sherali Zeadally for his strong support. We hope that this special issue will represent a timely and significant reference for future researches in multimedia networking area.