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Editorial

Special section on Networked Electronic Media – The new internet experience

The NEM Summit, held in Torino, Italy, on September 26th–29th, 2011, with more than 350 participants, 23 demonstrations from EU and nationally funded research projects, 6 co-located technical workshops and 36 technical talks was one of the most important and visible events focusing on Networked Electronic Media in 2011. Among all accepted papers, a best paper committee selected the most exciting, innovative and technically mature contributions. The current issue of the *Computer Communications* Journal presents four out of the top five papers from the 2011 NEM Summit. All four papers are based on the original contributions to the NEM Summit 2011, but for publication in this issue of the Elsevier Journal on *Computer Communications* have been significantly extended and enriched.

The first two papers address the scalability of multicast video delivery.

“A Delay-Based Aggregate Rate Control for P2P Streaming Systems” by S. Traverso (Politecnico di Torino) et al. introduces the so called Hose Rate Control (HRC), a rate control scheme to control the uplink rate of peers in a P2P network. Since many P2P networks are highly asymmetric (e.g. based on Asymmetric Digital Subscriber Line (ADSL) connections), the uplink bandwidth of the peers is the overall bandwidth limiting factor. Exploiting this uplink bandwidth without overloading therefore is an extremely important ingredient of P2P video delivery networks.

Jochen Miroll (Saarland University, Saarbrücken) et al. in their paper “Efficient OFDM-based WLAN-Multicast with Feedback Aggregation, Power Control and Rate Adaptation” focus on the lower layers of the ISO/OSI stack and develop a scheme exploiting concurrent feedback from all receivers of a large multicast receiver group. By means of (a) the concurrency and (b) the scheduling and careful selection of positive and negative acknowledgments, the group demonstrates fully scalable multicast in OFDM-based telecommunications systems, an application that in the advent of more and more multicast file and video services in Car2X, WLAN and LTE applications not only solves the scalability problem, but additionally paves the way for using power control and rate adaptation techniques out of the mature world of unicast.

The further two papers deal with the delay sensitivity of video or in general of media streaming applications.

“Design of a service platform for delay-sensitive video streaming applications based on multicast P2P and scalable MDC encoding” by Lorenzo Favalli (University of Pavia) et al. introduces a content delivery system for low-delay streaming services, that addresses the heterogeneity of the links in P2P systems by multiple description coding of the content based on H.264/SVC and the delivery of multiple substreams over independent trees, so that the rate can be adapted on the fly. The dynamic tree construction in case of bandwidth changes ensures that the video quality at the generic clients remains high.

M. Gorius (Intel Visual Computing Institute, Saarbrücken) et al. in their paper “Efficient and Low-Delay Error Control for Large-BDP Networks” design a transport protocol that solves one of the most dominant problems of TCP: its sensitivity to long delays, that due to the positive acknowledgement requirement of TCP, that leads to a constant bandwidth-delay product, limits the data rate in long delay networks. Gorius et al. introduce a dynamic hybrid error correction scheme and a redundancy scheduling approach that can operate IP-channels near to their theoretical capacity limits.

We wish to sincerely thank the authors for their effort in providing excellent contributions for publication in this journal.

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