

TRENDS IN CONSUMER COMMUNICATIONS: INTEGRATION, INTEGRATION, AND INTEGRATION



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A current major theme in the consumer communications area is heterogeneous wireless networks. This is largely driven by the popularity of mobile devices and the deployment of high-speed wireless networks. This heterogeneity has a number of dimensions. One dimension is heterogeneity in wireless technology, a trend that is strongly reflected in the articles in this issue of the Consumer Communications and Networking Series. We have selected three excellent papers giving a flavor of some of the challenges related to heterogeneity. These range from challenges in mobile video chat applications, over a study of the quality of experience in heterogeneous mobile wireless multimedia networks, to resource flexible applications for pervasive computing at home. Thus, integration and programming of heterogeneous environments is driving new research activities and creating added value from deployed infrastructures. This issue of the series provides an excellent example of the impacts of these trends.

The specific articles in this edition of the series are as follows. The first article, “Mobile Video Chat: Issues and Challenges” by S. Jana, A. Pande, A. Chan, and P. Mohapatra, identifies major limitations and challenges in mobile video chat and discusses possible solutions to these challenges, and also provides an outlook on further research questions. This article discusses heterogeneity with respect to network conditions, and mobile devices including screen sizes, processing power, and battery power.

The second article, “A Quality of Experience Handover Architecture for Heterogeneous Mobile Wireless Multimedia Networks” by J. Jailton, T. Carvalho, W. Valente, C. Natalino, K. Dias, and R. Frances, focuses on the coexistence of different wireless communications, and especially the issue of handover in multi-operator environments. The authors propose an architecture that extends the media independent handover proposal with quality of experience awareness.

Finally, the article “Graspable Resource-Flexible Applications for Pervasive Computing in the Home” challenges the common perception of applications being immaterial software artifacts to be accessed by computer-like devices. The article proposes the concept of a “pill,” which sees computer applications as physical things. The authors investigate how such an application can function and adapt to different settings, such as different homes with differences in object availability, and make the level of available functionality visible to the user.

If the articles in this series are of interest to you, we strongly urge you to consider participating in the IEEE Consumer Communications and Networking Conference (CCNC) 2014, which will be held next January in Las Vegas in conjunction with the Consumer Electronics

Show (CES) — the largest CE show in the world. See <http://www.ieee-ccnc.org> for details.

BIOGRAPHIES

ALI C. BEGEN [SM] (abegen@cisco.com) is with the Video and Content Platforms Research and Advanced Development Group at Cisco. His interests include networked entertainment, Internet multimedia, transport protocols, and content distribution. He is currently working on architectures for next-generation video transport and distribution over IP networks, and he is an active contributor in the IETF in these areas. He holds a Ph.D. degree in electrical and computer engineering from Georgia Tech. He received the Best Student Paper Award at IEEE ICIP 2003, and the Most Cited Paper Award from Elsevier *Signal Processing: Image Communication* in 2008. Recently, he was a General Co-Chair for the ACM Multimedia Systems Conference 2011. He organized a special session on IPTV and related technologies at Packet Video Workshop 2012.

MARIO KOLBERG [SM] (mko@cs.stir.ac.uk) is a senior lecturer within the Institute of Computing Science and Mathematics at the University of Stirling. His research interests include peer-to-peer overlay networks, home automation, and IP telephony. He led a project funded by Panasonic (USA) investigating efficiency gains in structured peer-to-peer overlays. He was the academic supervisor of a Knowledge Transfer Partnership focusing on developing a peer-to-peer overlay for mobile handsets. He is working within the ESRC project Interlife on using peer-to-peer networks with 3D virtual worlds in an educational context. He is also involved in the MATCH project, focusing on integrating different network technologies for care in the home. He is on the Editorial Board of the Springer journal *Peer-to-Peer Networking and Applications*, and has a long standing involvement with the IEEE CCNC series. He served as its TPC Chair for the January 2011 conference and was TPC Co-Chair of the 5th International Conference on Internet Multimedia Systems Architecture and Applications (IMSAA-11) held in December 2011 in Bangalore, India. He has published more than 50 papers in leading journals and conferences. He holds a Ph.D. from the University of Strathclyde, United Kingdom.

MADJID MERABTI [M] (M.Merabti@ljmu.ac.uk) is a professor of networked systems and director of the School of Computing and Mathematical Sciences at Liverpool John Moores University, United Kingdom. He holds a Ph.D. from Lancaster University, United Kingdom. He has over 20 years' experience in conducting research and teaching in the areas of computer networks (fixed and wireless), mobile computing, and computer network security. He is widely published, with over 150 publications in these areas, and leads the Distributed Multimedia Systems and Security Research Group. He is principal investigator in a number of current projects: Mobile Networks Security and Privacy Architectures and Protocols, Secure Component Composition in Ubiquitous Personal Networks, Networked Appliances, Mobile and Ad Hoc Computing Environments, Sensor Networks, and computer games technology. He was Guest Editor for the Special Issue on Research Developments in *Consumer Communications and Networking of Multimedia Tools and Applications: An International Journal* (Kluwer, September 2005). He is a member of the Steering Committee for IEEE CCNC. He has acted as TPC Chair for a number of international conferences, including the 5th IEEE Workshop on Networked Appliances, Liverpool, October 2002.