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NEW TRENDS IN MOBILE INTERNET TECHNOLOGIES AND APPLICATIONS

The mobile Internet technology and its related applications and services have progressed greatly in the past few years, and now we see many tiny terminals with integrated multifunction chips in the market. However, at the same time we observe a kind of separation between the technology development and the common Internet applications customers usually use. This had led to underutilization of mobile device capabilities such as mobile video and mobile television that come as part of new mobile devices. While for many people using specific Internet applications would be more comfortable with large-screen desktops, the mobility freedom provided by cellular and noncellular mobile technologies suggest the development of closer connections to applications so that users can receive most of their communications needs from their mobile devices. The purpose of this Feature Topic is to bring together a collection of research and development on new applications for the mobile Internet that can make the technology more appealing for wider use.

For this Feature Topic we have selected three articles from the open call. In the first article, “On Effective Offloading Services for Resource-Constrained Mobile Devices Running Heavier Mobile Internet Applications” by Kun Yang, Shumao Ou, and Hsiao-Hwa Chen, a novel offloading service from a small mobile terminal to a nearby computer is presented. The proposed architecture thus enables mobile users to run their normally large applications on mobiles with the help of a temporary host whenever it is available. The prototype presented in the article and the simulation results show that this could be a step toward wider use of our mobile devices and possible extension of mobile Internet applications.

The second article, “Media Independent Handover for Seamless Service Provision in Heterogeneous Networks” by George Lampropoulos, Apostolis K. Salkintzis, and Nikos Passas, addresses the service continuity problem when a user moves from one network to another and, in particular, how the emerging IEEE 802.21 standard enables seamless intertechnology handover. The ability of the standard to support seamless mobility has been demonstrated with a WiMAX to GPRS handover case study.

In the third article, “Forward Error Correction Strategies for Media Streaming over Wireless Networks,” Abdelhamid Nafaa, Tarik Taleb, and Liam Murphy present an adaptive packet-level forward error control (FEC) protocol to complement the existing error control mechanisms at the lower layers of the network. They have shown how network conditions could be better characterized by using packet loss patterns as feedback for FEC adaptation. The authors try to identify issues in designing a reliable media streaming system for wireless networks.

We hope that these three articles provide some understanding of challenges toward the mobile Internet of the future and its emerging applications. It is only a start to long-term research and development for mobile applications and services. We would like to thank Editor-in-Chief Tom Chen for his continuous support for this Feature Topic and the publication staff at ComSoc. We would like to thank all authors who submitted their articles for consideration in this issue. Unfortunately, due to space limitations, we could only accept three articles for this issue. We would also like to thank the reviewers for taking time to complete the reviews promptly.

BIOGRAPHIES

ABBAS JAMALIPOUR [F] (a.jamalipour@ieee.org) holds a Ph.D. from Nagoya University, Japan. He is the author of the first book on wireless IP and two other books, has co-authored five books and over 180 journal and conference papers, and holds two patents, all in the field of wireless networks. He is an IEEE Distinguished Lecturer and a Fellow of Engineers Australia. He was Chair of the Satellite and Space Communications TC (2004–2006), and is currently Vice Chair of the Communications Switching and Routing TC and Chair of the Asia-Pacific Board, Chapters Coordinating Committee. He is Editor-in-Chief of *IEEE Wireless Communications*, and a Technical Editor of *IEEE Communications Magazine*, *Wiley's International Journal of Communication Systems*, and several other scholarly international journals. He is a voting member of the IEEE GITC and has been a Vice Chair of IEEE WCNC '03–'06, Chair of IEEE GLOBECOM '05 (Wireless Communications), and a symposium Co-Chair of IEEE ICC '05–'08 and IEEE GLOBECOM '06–'07, among many other conferences. He is the recipient of several international awards, most recently the Best Tutorial Paper Award and Distinguished Contribution to Satellite Communications Award, both from the IEEE Communications Society in 2006.

MOHAMMED ATIUZZAMAN [SM] (atiq@ou.edu) earned M.Sc. and Ph.D. degrees in electrical engineering from the University of Manchester, England. Currently he is a professor in the School of Computer Science at the University of Oklahoma. He is Co-Editor-in-Chief of *Computer Communications Magazine*, and serves on the editorial boards of *IEEE Communications Magazine*, *Telecommunications Systems Journal*, *Wireless and Optical Networks Journal*, *International Journal of Communications Systems*, and *International Journal of Sensor Networks*. He was technical co-chair of the 2003 Workshop on High Performance Switching and Routing and the SPIE Quality of Service over Next-Generation Data Networks Conference (2001, 2002, 2003). He also serves on the Technical Program Committees of many national and international conferences, including IEEE INFOCOM, IEEE GLOBECOM, and IEEE International Conference on Computers and Communication Networks. His current research interests are in wireless, satellite, and mobile networks, quality of service for next-generation Internet, broadband networks, and multimedia over high-speed networks. He is co-author of *TCP/IP over ATM Networks*. He received THE IEEE Communications Society Fred W. Ellersick Prize and the IEE Premium Award for his research papers. His research has been supported by over \$3 million of funding from the National Science Foundation, National Aeronautics and Space Administration, and the U.S Air Force.