FOREWORD

Special Section on Network and System Technologies for Sustainable Society

Information and communication technology (ICT) plays a crucial role in the social infrastructures of various fields such as energy, distribution, medicine, and agriculture. For realizing a sustainable society, network and system technologies need to be designed that take into account new paradigms: energy-awareness, environment, and sustainability. Research and development of network systems for these purposes have emerged, including studies on green by/of ICT, smart grids, wired/wireless machine-to-machine (M2M) communications, visualization, robustness, and dependable networks. This special session was planned to discuss these network and system technologies for sustainable society.

The Call for Papers attracted 18 full-paper submissions from four countries. After careful review and much discussion, the editorial committee selected seven papers (including one invited paper). The invited paper details NTT Communications' development and deployment activities of OpenFlow/software defined networking (SDN) technologies for their commercial networks. The other papers cover a variety of topics: a low-latency forwarding information base (FIB) lookup scheme for content-centric networking (CCN), a revenue-managed time-dependent pricing scheme in duopoly competition environments, an energy-saving virtual grouping method for M2M networks, an energy-saving access-point aggregation approach for multiple wireless local area networks (WLANs), a robust cross-layer routing protocol for wireless sensor networks (WSNs), and energy-saving barrier coverage construction methods for secure WSNs. The editorial committee trusts that this special section will help readers share new knowledge and ideas and encourage R&D activities in the field.

As the guest editor-in-chief, I would like to express my sincere appreciation to all authors for their contributions and to all the reviewers and members of the editorial committee for their great effort in the review process.

Shigeo Urushidani, Guest Editor-in-Chief

Shigeo Urushidani (*Member*)   is a professor and director in the Information System Architecture Research Division of the National Institute of Informatics (NII). He received B.E. and M.E. degrees from Kobe University in 1983 and 1985 and a Ph.D. from the University of Tokyo in 2002. He worked for NTT from 1985 to 2006, where he was engaged in the research, development, and deployment of high-performance network service systems including ATM, AIN, high-speed IP/MPLS, and GMPLS-based optical systems. He moved to NII in 2006 and is currently involved in the design and implementation of the Japanese academic backbone network called SINET. His current research interests include network architecture and system architecture for ultra-high-speed green networks. He received the Best Paper Award in 1988, the Young Investigators Award in 1990, and the Communications Society Best Tutorial Paper Award in 2009 from IEICE. He is a member of IEEE.