

Foreword

From a wireless networking point of view, we are in the midst of a revolution. Traditional approaches and devices, which were considered as luxuries only 15 or 20 years ago, have given way to a proliferation of wireless access technologies and an explosion in the number and variety of user devices. Mobile and wireless access is now a global necessity and underpins much of the world's societal and economic activities. People everywhere have shown a tremendous desire for running a wide range of applications on their wireless devices, from voice communications and email/text messaging to interactive video and the full Internet experience.

However, it would be premature to claim that we have reached the ultimate goal of “any application, anytime, anywhere” where the end-user gets the same quality of experience as they get in wired networks. Despite the recent advances in wireless network protocols and services, there is no clear technological path to achieving this goal. What does seem certain is that the wireless environment will be heterogeneous, with a mixture of WLAN/Bluetooth/3G/LTE/WiMAX/other technologies accessible to a range of multi-access-enabled user devices. This leads inevitably to another feature of the current and future wireless environment: it can be extremely dynamic, with very rapid changes in network characteristics and user traffic behavior. This requires adaptive approaches to network access, transmission and reception, resource allocation, and many other elements of wireless networking.

There has of course been a surge in the number of researchers working in this field, and there is now an extensive literature on wireless quality of service, wireless multimedia applications, wireless mobility management, and related areas. Gabriel-Miro Muntean and Ramona Trestian have made a significant contribution to the field by focusing attention for their book on Quality of Service (QoS) provisioning in heterogeneous wireless environments. They have identified two key aspects of this problem, namely architectural approaches and QoS provisioning solutions, and have carefully chosen and edited an excellent selection of up-to-date chapters addressing these aspects. The architectural chapters cover coexistence of different wireless technologies, mobility and handover management, network selection and virtualization, and other leading-edge topics; while the QoS provisioning chapters provide the latest results on carrier-grade QoS, multimedia broadcasting, traffic prioritization, packet scheduling, and much more.

Muntean and Trestian have selected an impressive array of experts from around the world to provide the insights contained in these chapters. I believe there is much to savor here for both students and researchers, who will get valuable details on current research and possible future approaches, as well as for those closer to the industry, who will get sight of the varied and inventive ways in which problems familiar to them are being addressed. I am sure that *Wireless Multi-Access Environments and Quality*

of Service Provisioning: Solutions and Application will serve as an important bridge between academic research and industrial application, and that it will be an authoritative reference work in the field of wireless quality of service for many years.

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Liam Murphy received a B.E. in Electrical Engineering from University College Dublin in 1985, and a M.Sc. and Ph.D. in Electrical Engineering and Computer Sciences from the University of California, Berkeley, in 1988 and 1992, respectively. He is currently a Full Professor in Computer Science at University College Dublin, where he is Director of the Performance Engineering Laboratory. Prof. Murphy has published over 150 refereed journal and conference papers on various topics, including multimedia transmissions, dynamic and adaptive resource allocation algorithms in computer/communication networks, and software development. His current research projects involve mobile and wireless systems and computer network convergence issues. Prof. Murphy is a Member of the IEEE (Communications, Broadcasting, and Computer societies) and a Fellow of the Irish Computer Society.