

Emerging Wireless Technologies and the Future Mobile Internet

This book provides a preview of emerging wireless technologies and their architectural impact on the future mobile Internet. The reader will find an overview of architectural considerations for the mobile Internet, along with more detailed technical discussion of new protocol concepts currently being considered at the research stage.

The first chapter starts with a discussion of anticipated mobile/wireless usage scenarios, leading to an identification of new protocol features for the future Internet. This is followed by several chapters that provide in-depth coverage on next-generation wireless standards, ad hoc and mesh network protocols, opportunistic delivery and delay-tolerant networks, sensor network architectures and protocols, cognitive radio networks, vehicular networks, security and privacy, and experimental systems for future Internet research. Each of these contributed chapters includes a discussion of new networking requirements for the wireless scenario under consideration, architectural concepts, and specific protocol designs, many still at the research stage.

Dipankar Raychaudhuri is Professor-II, Electrical and Computer Engineering and Director, Wireless Information Network Lab (WINLAB) at Rutgers University. WINLAB's research scope includes topics such as RF (Radio Frequency)/sensor devices, cognitive radio, dynamic spectrum access, 4G systems, ad hoc mesh networks, wireless security, future Internet architecture, and pervasive computing. Raychaudhuri is widely recognized as a leader in the future Internet research field and has lectured extensively on the topic at both national and international forums. During 2005–2007, he organized and co-hosted the NSF (National Science Foundation) “Wireless Mobile Planning Group” (WMPG) workshops that inspired and set the stage for much of the content in this book.

Mario Gerla is a Professor in the Computer Science Department at the University of California, Los Angeles. He has led the ONR (Office of Naval Research) MINUTEMAN (Multimedia Intelligent Network of Unattended Mobile Agents) project, designing the next-generation scalable airborne Internet for tactical and homeland defense scenarios and two advanced wireless network projects under U.S. Army and IBM funding. Dr. Gerla is an active participant in future Internet research activities in the United States, co-hosting the NSF WMPG workshops from 2005 to 2007. His research group is an active contributor to the emerging field of vehicular networking and is credited with the “CarTorrent” protocol for peer-to-peer file transfer between vehicles.

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