Convergence of Mobile and Stationary Next-Generation Networks
Krzysztof Iniewski (Editor)

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DESCRIPTION

The Only Resource to Cover Wireless, Wireline, and Optical Networks in One Volume

Mobile and stationary next-generation networks that access the photonic core are destined to become as ubiquitous as traditional telephone networks. These networks must efficiently provide adequate network quality to multimedia applications with high bandwidth and strict quality-of-service requirements, as well as seamlessly integrate mobile and fixed architectures. Today's engineering students must be properly prepared to meet the challenges of next-generation network development and deployment.

Featuring contributions from top industrial experts and academic professors, this authoritative work provides a comprehensive introduction to next-generation networks. It explains wireless networks such as wireless local area networks (WLAN), wireless personal area networks (WPAN), wireless access, 3G/4G cellular, and RF transmission, as well as optical networks like long-haul and metropolitan networks, optical fiber, photonic devices, and VLSI chips. Rather than focusing on heavy math or physical details, this resource explores how the technology is being used. It describes access and transport network layer technologies while also discussing the network and services aspects.

Chapter coverage includes:

- Fiber–wireless networks: technologies, architectures, and future challenges
Packet backhaul network

Point-to-point microwave backhaul

Fourth-generation broadband: paving the road to Gbit/s with copper

Dynamic bandwidth allocation in EPON and GPON

Next-generation ethernet passive optical networks: 10G-EPON

Power line communications and smart grids

Signaling for multimedia conferencing in 4G: architecture, evaluation, and issues

Self-coexistence and security in cognitive radio networks

Mobile WiMAX

UWB personal area networks—MIMO extensions

Next-generation integrated metropolitan-access network: technology integration and wireless convergence
Resilient burst ring: a novel technology for the next-generation metropolitan area networks

Filled with illustrations and practical examples from industry, this book will be invaluable to engineers and researchers in industry and academia, as well as senior undergraduate and graduate students, marketing and management staff, photonics physicists, and chip designers.

ABOUT THE AUTHOR

KRZYSZTOF INIEWSKI, P HD, is the Executive Director at CMOS Emerging Technologies. His research interests are in VLSI circuits for medical and security applications. From 2005 to 2006, he was an associate professor in the Electrical Engineering and Computer Engineering Department of the University of Alberta, where he conducted research on low-power wireless circuits and systems. Dr. Iniewski has published over 100 research papers in international journals and conferences. He holds eighteen international patents granted in the United States, Canada, France, Germany, and Japan.

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