1. Record Nr. UNINA9910816392203321

Titolo	Green communications : principles, concepts and practice / / edited by Konstantinos Samdanis, Peter Rost, Andreas Maeder, Michela Meo and Christos Verikoukis
Pubbl/distr/stampa	The Atrium, Southern Gate, Chichester, West Sussex, United Kingdom : , : John Wiley & Sons, Ltd, , 2015 [Piscataqay, New Jersey] : , : IEEE Xplore, , [2015]
ISBN	1-118-75923-0 1-118-75925-7 1-118-75924-9
Edizione	[1st edition]
Descrizione fisica	1 online resource (452 p.)
Disciplina	004.0286
Soggetti	Information technology - Environmental aspects Technological innovations - Environmental aspects Information technology - Energy consumption Green technology
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	-- List of Contributors -- Preface -- 1. Introduction -- 2. Fundamentals: Categorization of Green Communication concepts -- 3. Fundamentals: Energy Efficiency Metrics and Performance Tradeoffs of Green Wireless networks Trade-offs and metrics of green communication -- 4. Fundamentals: Embodied energy of communication devices -- 5. Wireless: Energy efficient Base stations -- 6. Wireless: Network design and planning -- 7. Wireless: Green Radio -- 8. Wireless: Network management -- 9. Wireless: Home and Enterprise Networks -- 10. Wireless: Towards Delay Tolerant Cognitive Cellular Networks -- 11. Wireless: Green MTC, M2M, Internet of Things -- 12. Wireless: Energy Saving standardization in Mobile and Wireless Communication Systems -- 13. Wireline: Routing, Switching and Transport -- 14. Wireline: Energy Efficient Ethernet -- 15. Wireline: Green Optical Networks -- 16. Wireline: Energy Efficient Networking in

Modern Data Center -- 17. Wireline: SDN-Enabled Energy-Efficient Network Management -- 18. Wireline: Energy Efficiency Protocol Design -- 19. Wireline: Energy Efficiency benefits due to Information Centric Networking -- 20. Wireline: Energy Efficient Standards for Wireline Communications -- 21. Conclusion

Sommario/riassunto

The steady rise of power cost in combination with regulatory initiatives and government policies are driving academia and industry towards energy-efficient solutions for ICT (Information and Communication Technologies). Mobile and fixed networks progressively handle bigger volumes of data, driven by the emerging user devices, multimedia, social and cloud services; the mass connectivity of ubiquitous communicating things and the flat rate charging models, causing a continuous need for network infrastructure enhancement, which also has to accommodate higher speeds and reliability, causing network operators difficulties in securing profits. Green or energy efficient communications is the means to reduce the cost of telecommunication services, whilst introducing social responsibility, helping network operators to be environmentally friendly. This book examines specific mechanisms concerning wireless and fixed communication networks as well as all network layers of a telecommunication network emphasizing a system perspective, providing a comprehensive view of green communications considering the main principles and practice, documenting the industry view and standardization as well. Energy efficiency will gain even more importance over the next decade mainly due to the emerging 5G, converged networks and cloud networking, and it will be established as a key factor for economic growth in developing countries. This timely book introduces general concepts, measures and objectives, aiming to stimulate future research in green communications, which can influence the development of new approaches based on holistic and systems perspective. * Provides a holistic view on this increasingly important topic in communications, as research into energy-efficiency across ICT gains momentum * Gives an overview of basic concepts, approaches and metrics applicable to various telecommunication systems * Draws out the key principles of the topic before articulating the issues within the wireless and fixed domain, highlighting synergies between the two.