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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.
