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Nota di contenuto	Cover; Contents; Preface; Acknowledgment; Chapter 1 Introduction to Energy Efficiency in Large-Scale Distributed Systems; 1.1 Energy Consumption Status; 1.2 Target of the Book; 1.3 The Cost Action IC0804; 1.3.1 Birth of the Action; 1.3.2 Development of the Action; 1.3.3 End and Future of the Action; 1.4 Chapters Preview; Acknowledgement; References; Chapter 2 Hardware Leverages for Energy Reduction in Large-Scale Distributed Systems; 2.1 Introduction; 2.1.1 Motivation for Energy-Aware Distributed Computing; 2.2 Processor; 2.2.1 Context; 2.2.2 Advanced Configuration and Power Interface (ACPI) 2.2.3 Vendors 2.2.4 General-Purpose Graphics Processing Unit (GPGPU); 2.2.5 ARM Architecture; 2.3 Memory (DRAM); 2.3.1 Context; 2.3.2 Power Consumption; 2.3.3 Energy Efficiency Techniques; 2.3.4 Vendors; 2.4 Disk/Flash; 2.4.1 Spindle Speed; 2.4.2 Seek Speed; 2.4.3 Power Modes; 2.4.4 Power Consumption; 2.4.5 Solid-State Drive (SDD); 2.5 Fan; 2.6 Power Supply Unit; 2.7 Network Infrastructure; 2.7.1 Current Scenario; 2.7.2 New Energy-Oriented Model; 2.7.3 Current Advances in Networking; 2.7.4 Adaptive Link Rate (ALR); 2.7.5 Low Power Idle (LPI); 2.7.6 Energy-Aware Dynamic RWA Framework

2.7.7 Energy-Aware Network Attacks References; Chapter 3 Green Wired Networks; 3.1 Economic Incentives and Green Tariffing; 3.1.1 Regulatory, Economic, and Microeconomic Measures; 3.1.2 Pricing Theory in Relation to Green Policies; 3.1.3 COST Action Results; 3.2 Network Components; 3.2.1 Router; 3.2.2 Network Interface Card; 3.2.3 Reconfigurable Optical Add-Drop Multiplexer; 3.2.4 Digital Subscriber Line Access Multiplexer; 3.3 Architectures; 3.3.1 Access Networks; 3.3.2 Carrier Networks; 3.3.3 Grid Overlay Networks; 3.4 Traffic Considerations; 3.5 Energy-Saving Mechanisms
3.5.1 Static Mechanisms 3.5.2 Dynamic Mechanisms; 3.6 Challenges; 3.7 Summary; References; Chapter 4 Green Wireless-Energy Efficiency in Wireless Networks; 4.1 Introduction; 4.2 Metrics and Trade-Offs in Wireless Networks; 4.2.1 Metrics; 4.2.2 Energy Optimization Trade-Offs; 4.2.3 Summary; 4.3 Measurement Methodology; 4.3.1 Energy Measurement Testbeds; 4.3.2 Energy Estimation Techniques; 4.3.3 Energy Measurements versus Estimation; 4.3.4 Summary; 4.4 Energy Efficiency and QoE in Wireless Access Networks; 4.4.1 Energy Issues in Cellular Networks
4.4.2 Energy Efficiency and QoE in Wireless Mesh Networks 4.4.3 Reducing Energy Consumption of the End User Device; 4.4.4 Energy Measurements Revealing Video QoE Issues; 4.4.5 Energy Issues in Environmental WMNs; 4.4.6 Summary; 4.5 Energy-Efficient Medium Access in Wireless Sensor Networks; 4.5.1 MaxMAC -- An Energy-Efficient MAC Protocol; 4.5.2 Real-World Testbed Experiments with MaxMAC; 4.5.3 Summary; 4.6 Energy-Efficient Connectivity in Ad-Hoc and Opportunistic Networks; 4.6.1 Ad-Hoc Networking; 4.6.2 Opportunistic and Delay-Tolerant Networking; 4.6.3 Summary; 4.7 Summary and Conclusions
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Sommario/riassunto

Addresses innovations in technology relating to the energy efficiency of a wide variety of contemporary computer systems and networks With concerns about global energy consumption at an all-time high, improving computer networks energy efficiency is becoming an increasingly important topic. Large-Scale Distributed Systems and Energy Efficiency: A Holistic View addresses innovations in technology relating to the energy efficiency of a wide variety of contemporary computer systems and networks. After an introductory overview of the energy demands of current Information and Communications Tech