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Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Energy-Efficient and High-Performance Processing of Large-Scale Parallel Applications in Data Centers -- Energy-Aware Algorithms for Task Graph Scheduling, Replica Placement, and Checkpoint Strategies -- Energy Efficiency in HPC Data Centers: Latest Advances to Build the Path to Exascale -- Techniques to Achieve Energy Proportionality in Data Centers: A Survey -- A Power-Aware Autonomic Approach for Performance Management of Scientific Applications in a Data Center Environment -- CoolEmAll: Models and Tools for Planning and Operating Energy Efficient Data Centers -- Smart Data Center -- Power and Thermal Efficient Numerical Processing -- Providing Green Services in HPC Data Centers: A Methodology Based on Energy Estimation --

Network Virtualization in Data Centers: A Data Plane Perspective -- Optical Data Center Networks: Architecture, Performance, and Energy Efficiency -- Scalable Network Communication Using Unreliable RDMA -- Packet Classification on Multi-Core Platforms -- Optical Interconnects for Data Center Networks -- TCP Congestion Control in Data Center Networks -- Routing Techniques in Data Center Networks -- Auditing for Data Integrity and Reliability in Cloud Storage -- I/O and File Systems for Data-Intensive Applications -- Cloud Resource Pricing Under Tenant Rationality -- Online Resource Management for Carbon-Neutral Cloud Computing -- A Big Picture of Integrity Verification of Big Data in Cloud Computing -- An Out-of-Core Task-Based Middleware for Data –Intensive Scientific Computing -- Building Scalable Software for Data Centers: An Approach to Distributed Computing at Enterprise Level -- Cloud Storage over Multiple Data Centers -- Realizing Accelerated Cost-Effective Distributed RAID -- Efficient Hardware-Supported Synchronization Mechanisms for Manycores -- Hardware Approaches to Transactional Memory in Chip Multiprocessors -- Data Center Modeling and Simulation Using OMNeT -- Power-Thermal Modeling and Control of Energy-Efficient Servers and Data Centers -- Modeling and Simulation of Data Center Networks -- C2Hunter: Detection and Mitigation of Covert Channels in Data Centers -- Selective and Private Access to Outsourced Data Centers -- Privacy in Data Centers: A Survey of Attacks and Countermeasures -- Quality-of-Service in Data Center Stream Processing for Smart City Applications -- Opportunistic Databank: A Context-Aware On-The-Fly Data Center for Mobile Networks -- Data Management: State-of-the-Practice at Open-Science Data Centers -- Data Summarization Techniques for Big Data: A Survey -- Central Management of Data Centers -- Monitoring of Data Centers Using Wireless Sensor Networks -- Network Intrusion Detection Systems in Data Centers -- Software Monitoring in Data Centers -- Usage Patterns in Multi-Tenant Data Centers: A Large-Case Field Study -- On Scheduling in Distributed Transactional Memory: Techniques and Tradeoffs -- Dependability-Oriented Resource Management Schemes for Cloud Computing Data Centers -- Resource Scheduling in Data-centric Systems.

Sommario/riassunto

This handbook offers a comprehensive review of the state-of-the-art research achievements in the field of data centers. Contributions from international, leading researchers and scholars offer topics in cloud computing, virtualization in data centers, energy efficient data centers, and next generation data center architecture. It also comprises current research trends in emerging areas, such as data security, data protection management, and network resource management in data centers. Specific attention is devoted to industry needs associated with the challenges faced by data centers, such as various power, cooling, floor space, and associated environmental health and safety issues, while still working to support growth without disrupting quality of service. The contributions cut across various IT data technology domains as a single source to discuss the interdependencies that need to be supported to enable a virtualized, next-generation, energy efficient, economical, and environmentally friendly data center. This book appeals to a broad spectrum of readers, including server, storage, networking, database, and applications analysts, administrators, and architects. It is intended for those seeking to gain a stronger grasp on data center networks: the fundamental protocol used by the applications and the network, the typical network technologies, and their design aspects. The Handbook of Data Centers is a leading reference on design and implementation for planning, implementing, and operating data center networks.