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Nota di contenuto	Front Cover; Optimized Cloud Resource Management and Scheduling; Copyright Page; Contents; Foreword; Preface; About the Authors; Acknowledgments; 1 An Introduction to Cloud Computing; Main Contents of this Chapter; 1.1 The background of Cloud computing; 1.2 Cloud computing is an integration of other advanced technologies; 1.2.1 Parallel computing; 1.2.2 Grid computing; 1.2.3 Utility computing; 1.2.4 Ubiquitous computing; 1.2.5 Software as a service; 1.2.6 Virtualization technology; 1.3 The driving forces of Cloud computing; 1.4 The development status and trends of Cloud computing 1.5 The classification of Cloud computing applications1.5.1 Classification by service type; 1.5.2 Classification by deployment method; 1.6 The different roles in the Cloud computing industry chain; 1.7 The main features and technical challenges of Cloud computing; 1.7.1 The main features of Cloud computing; 1.7.2 Challenging issues; Summary; References; 2 Big Data Technologies and Cloud Computing; Main Contents of this Chapter; 2.1 The background and definition of big data; 2.2 Big data problems; 2.2.1 The problem of speed; 2.2.2 The type and architecture problem 2.2.3 Volume and flexibility problems2.2.4 The cost problem; 2.2.5 The value mining problem; 2.2.6 The security and privacy problem; 2.2.7 Interoperability and data sharing issues; 2.3 The dialectical relationship between Cloud computing and big data; 2.4 Big data technologies;

2.4.1 Infrastructure support; 2.4.2 Data acquisition; 2.4.3 Data storage; 2.4.4 Data computing; 2.4.4.1 Offline batch computing; 2.4.4.2 Real-time interactive computing; 2.4.4.3 Streaming computing; 2.4.5 Data presentation and interaction; 2.4.6 Related work; Summary; Acknowledgments; References

3 Resource Modeling and Definitions for Cloud Data Centers

Main Contents of this Chapter; 3.1 Resource models in Cloud data centers; 3.2 Data center resources; 3.3 Categories of Cloud data center resources; 3.3.1 Properties and operations of various resources; 3.3.1.1 Physical servers (PMs); 3.3.1.1.1 The main properties of a physical server; 3.3.1.1.2 Physical server states; 3.3.1.1.3 Main operations of a physical server; 3.3.1.1.4 Server operation error; 3.3.1.2 Physical server cluster; 3.3.1.2.1 Main properties of a physical server cluster; 3.3.1.2.2 States of a physical server cluster

3.3.1.2.3 Operations of a physical server cluster

3.3.1.2.4 Physical server errors; 3.3.1.3 Virtual machines; 3.3.1.3.1 Properties of VMs; 3.3.1.3.2 Operations of VMs; 3.3.1.3.3 States of VMs; 3.3.1.3.4 Typical configurations of VMs; 3.3.1.4 Virtual clusters; 3.3.1.4.1 Main properties of a virtual cluster; 3.3.1.4.2 States of a virtual cluster; 3.3.1.4.3 Operations of a virtual cluster; 3.3.1.4.4 Operational errors on VMs; 3.3.1.5 Schedule domains; 3.3.1.5.1 Properties of schedule domains; 3.3.1.5.2 Operations of schedule domains; 3.3.1.5.3 States of schedule domains; 3.3.1.6 Storage

3.3.1.6.1 Properties of shared storage

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#### Sommario/riassunto

Optimized Cloud Resource Management and Scheduling identifies research directions and technologies that will facilitate efficient management and scheduling of computing resources in cloud data centers supporting scientific, industrial, business, and consumer applications. It serves as a valuable reference for systems architects, practitioners, developers, researchers and graduate level students. Explains how to optimally model and schedule computing resources in cloud computingProvides in depth quality analysis of different load-balance and energy-efficient scheduling algorithms for cloud dat

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