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   Titolo   Block Trace Analysis and Storage System Optimization : A Practical
                      Approach with MATLAB/Python Tools / / by Jun Xu

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   Nota di contenuto   Chapter 1: Introduction -- Chapter 2: Trace Characteristics -- Chapter
                      3: Trace Collection -- Chapter 4: Trace Analysis -- Chapter 5: Case
                      Study: Benchmarking Tools -- Chapter 6: Case Study: Modern Disks --
                      Chapter 7: Case Study: RAID -- Chapter 8: Case Study: Hadoop --
                      Chapter 9: Case Study: Ceph -- Appendix A: Tools and Functions --
                      Appendix B: Blktrace and Tools.

   Sommario/riassunto Understand the fundamental factors of data storage system
                      performance and master an essential analytical skill using block trace
                      via applications such as MATLAB and Python tools. You will increase
                      your productivity and learn the best techniques for doing specific tasks
                      (such as analyzing the IO pattern in a quantitative way, identifying the
                      storage system bottleneck, and designing the cache policy). In the new
                      era of IoT, big data, and cloud systems, better performance and higher
                      density of storage systems has become crucial. To increase data
                      storage density, new techniques have evolved and hybrid and parallel
                      access techniques—together with specially designed IO scheduling and
                      data migration algorithms—are being deployed to develop high-
                      performance data storage solutions. Among the various storage system
                      performance analysis techniques, IO event trace analysis (block-level
                      trace analysis particularly) is one of the most common approaches for
                      system optimization and design. However, the task of completing a
                      systematic survey is challenging and very few works on this topic exist.

Block Trace Analysis and Storage System Optimization brings together theoretical analysis (such as IO qualitative properties and quantitative metrics) and practical tools (such as trace parsing, analysis, and results reporting perspectives). The book provides content on block-level trace analysis techniques, and includes case studies to illustrate how these techniques and tools can be applied in real applications (such as SSHD, RAID, Hadoop, and Ceph systems). What You'll Learn: Understand the fundamental factors of data storage system performance Master an essential analytical skill using block trace via various applications Distinguish how the IO pattern differs in the block level from the file level Know how the sequential HDFS request becomes "fragmented" in final storage devices Perform trace analysis tasks with a tool based on the MATLAB and Python platforms.