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3.3 Improving Disk Throughput3.4 Grouped Sweeping Scheme; 3.5 Multi-Disk Storage And Retrieval; 3.5.1 Partition and Replication; 3.5.2 Disk Striping; 3.5.3 Multi-Disk Scheduling; 3.6 Disk Zoning; 3.7 Summary; References; 4 Soft Scheduling; 4.1 Introduction; 4.2 Statistical Capacity Dimensioning; 4.3 Dual-Round Scheduling; 4.3.1 Read-Ahead Algorithm; 4.3.2 Performance Modeling; 4.3.3 Buffer Requirement; 4.4 Early-Admission Scheduling; 4.4.1 Admission Algorithm; 4.4.2 First-Block Replication; 4.5 Overflow Management; 4.5.1 Deadline-Driven Detection; 4.5.2 Overflow Recovery; 4.6 Performance Evaluation4.6.1 Service Round Length Distribution; 4.6.2 Statistical Streaming Capacity; 4.6.3 Dual-Round Scheduling; 4.6.4 Early-Admission Scheduling; 4.6.5 Buffer Requirement; 4.7 Related Work; 4.8 Summary; References; 5 Reliable and Fault-Tolerant Storage Systems; 5.1 Introduction; 5.2 Background; 5.3 System Model; 5.3.1 Disk Redundancy; 5.3.2 Storage Allocation and I/O Scheduling; 5.3.3 Disk Performance Model; 5.3.4 Capacity Dimensioning; 5.4 Automatic Data Rebuild; 5.4.1 Sparing Scheme; 5.4.2 Rebuild Algorithm; 5.4.3 Analysis of Rebuild Time; 5.4.4 Buffer Requirement; 5.5 Track-Based Rebuild5.5.1 Rebuild Algorithm; 5.5.2 Analysis of Rebuild Time; 5.5.3 Buffer Requirement; 5.6 Pipelined Rebuild; 5.6.1 Buffer Requirement; 5.6.2 Active Disk Synchronization; 5.7 Performance Evaluation; 5.7.1 Comparison of Rebuild Time; 5.7.2 Sensitivity to Server Utilization; 5.7.3 Sensitivity to Media Block Size; 5.7.4 Buffer Requirement; 5.8 Summary; References; 6 Media Data Streaming; 6.1 Streaming over TCP/UDP; 6.2 Specialized Streaming Protocols; 6.2.1 Real-Time Streaming Protocol (RTSP); 6.2.2 Real-Time Transport Protocol (RTP); 6.3 Summary; References; 7 Streaming Variable Bit-Rate Media Streams

Sommario/riassunto

Continuous media streaming systems will shape the future of information infrastructure. The challenge is to design systems and networks capable of supporting millions of concurrent users. Key to this is the integration of fault-tolerant mechanisms to prevent individual component failures from disrupting systems operations. These are just some of the hurdles that need to be overcome before large-scale continuous media services such as video-on-demand can be deployed with maximum efficiency. The author places the subject in context, drawing together findings from the past decade of rese
