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Sommario/riassunto	This book introduces a new scheduler to fairly and efficiently distribute system resources to many users of varying usage patterns compete for them in large shared computing environments. The Rawlsian Fair scheduler developed for this effort is shown to boost performance while reducing delay in high performance computing workloads of certain types including the following four types examined in this book: i. Class A – similar but complementary workloads ii. Class B – similar

but steady vs intermittent workloads iii. Class C – Large vs small workloads iv. Class D – Large vs noise-like workloads This new scheduler achieves short-term fairness for small timescale demanding rapid response to varying workloads and usage profiles. Rawlsian Fair scheduler is shown to consistently benefit workload Classes C and D while it only benefits Classes A and B workloads where they become disproportionate as the number of users increases. A simulation framework, dSim, simulates the new Rawlsian Fair scheduling mechanism. The dSim helps achieve instantaneous fairness in High Performance Computing environments, effective utilization of computing resources, and user satisfaction through the Rawlsian Fair scheduler.
