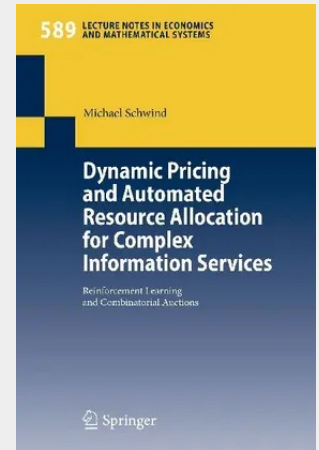


Dynamic Pricing and Automated Resource Allocation for Complex Information Services

Many firms provide their customers with online information products which require limited resources such as server capacity. This book develops allocation mechanisms that aim to ensure an efficient resource allocation in modern IT-services. Recent methods of artificial intelligence, such as neural networks and reinforcement learning, and nature-oriented optimization methods, such as genetic algorithms and simulated annealing, are advanced and applied to allocation processes in distributed IT-infrastructures, e.g. grid systems. The author presents two methods, both of which using the users' willingness-to-pay to control the allocation process: The first approach uses a yield management method that tries to learn an optimal acceptance strategy for resource requests. The second method is a combinatorial auction able to deal with resource complementarities. The author finally generates a method to calculate dynamic resource prices, marking an important step towards the industrialization of grid systems.

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