Optimizing Cloud Use under Interval Uncertainty

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One of the main advantages of cloud computing is that it helps the users to save money: instead of buying a lot of computers to cover all their computations, the user can rent the computation time on the cloud to cover the rare peak spikes of computer need. From this viewpoint, it is important to find the optimal division between in-house and in-the-cloud computations. In this paper, we solve this optimization problem, both in the idealized case when we know the complete information about the costs and the user's need, and in a more realistic situation, when we only know interval bounds on the corresponding quantities.

Keywords: interval computations, interval uncertainty, cloud computing, optimal use of cloud