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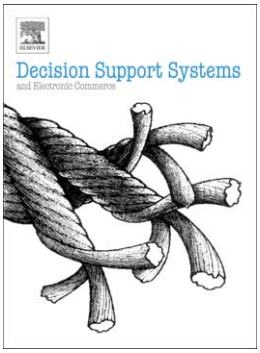

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Multi-objective Optimization based Ranking Prediction for Cloud Service Recommendation

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Abstract

Performing effective ranking prediction for cloud services can help customers make prompt decisions when they are confronted by a large number of choices. This can also enhance web service user satisfaction levels. Improving ranking prediction of QoS-based services continues to be an active topic of research in cloud service recommendation. Most service recommendation algorithms focus on prediction accuracy, ignoring diversity, which also may be an important consideration. In this paper we view service recommendation as a multi-objective optimization problem, and give two modified ranking prediction and recommendation algorithms that simultaneously consider accuracy and diversity. Existing algorithm recommendations can be made much more diverse by adjusting weights on service origin and substantially reducing the risk of inappropriate recommendations. Our experiments show that the algorithms we propose can yield greater diversity without greatly sacrificing prediction accuracy.

Keywords: multi-objective optimization, QoS ranking, cloud service, service diversity, service recommendation

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