

# A Lightweight Approach for QoS–Aware Service Composition

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## ABSTRACT

One of the most challenging issues of service–centric software engineering is the QoS–aware composition of services. The aim is to search for the optimal set of services that, composed to create a new service, result in the best QoS, under the user or service designer constraints. During service execution, re-planning such a composition may be needed whenever deviations from the QoS estimates occur. Both QoS–aware composition and re-planning may need to be performed in a short time, especially for interactive or real–time systems. This paper proposes a lightweight approach for QoS–aware service composition that uses genetic algorithms for the optimal QoS estimation. Also, the paper presents an algorithm for early triggering service re-planning. If required re-planning is triggered as soon as possible during service execution. The performances of our approach are evaluated by means of numerical simulation.