Abstract

With the advent of cloud service-based applications and Software as a Service (SaaS), new applications have recently known an increasing use of service-oriented architecture (SOA). This model has allowed computer science and associated industries to build new customized applications, by using the available and the existing cloud services bridged together dynamically to form a complex workflow process with more functionalities. However, cloud services with similar and compatible functionalities may be offered by multiple providers but may also be offered at different QoS levels. Hence, to build a composite service with a high QoS, a decision should be made based on end-to-end QoS. This work proposes a new approach, for QoS-aware cloud service composition, which addresses a universal model, with end-to-end QoS. It also proposes an effective evolutionary method based on Shuffled Frog Leaping Algorithm (SFLA), which is satisfying global and local constraints. Therefore, in order to evaluate the robustness of the proposed approach, we have evaluated the impact of several parameters that are highly significant in evolutionary methods, such as the impact of the population size, number of candidate services per task and number of criteria. The experimental results show that the chosen algorithm performs better than the ones based on
Genetic Algorithm (GA).

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