User-Centric Cloud Service Broker

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Abstract

Cloud computing technology has gained enormous attention due to its promising capabilities such as virtualization, elasticity and the pay-per-use paradigm. Theoretically, cloud computing can offer Everything as a Service (XaaS). Selecting suitable cloud services matching the Quality-of-Service (QoS) requirements of the user is one of the prominent problems in the literature. A considerable number of research studies attempted to address this problem from different perspectives such as service discovery, service matching and ranking (against QoS requirements of the user) in addition to QoS evaluation and monitoring. In this paper, we argue that we need to integrate all those functionalities to help the cloud service user make more informed selection decisions. Accordingly, we propose a comprehensive user-centric Cloud Service Broker (CSB). We describe the architecture of this broker and discuss how it integrates and orchestrates the different required functionalities. We also discuss different possible methods to realize and implement each of its modules and pinpoint open points of research that need to be explored further. As a proof of concept, we present an example prototype implementation of CSB and discuss a case study using this prototype to justify the advantage of
the integration. Towards this goal, we propose a novel evaluation-aware matching and ranking technique that integrates cloud services evaluation results with their matching and ranking against the user QoS requirements for more informed selections of suitable cloud services by taking into consideration the credibility of the cloud service providers.

References


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