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

360-degree compared. In Proceedings of IEEE Grid Computing Environments Workshop,
Austin, TX, USA, (2008).
800-145, National Institute of Standards and Technology (NIST), U.S. Department of
5. Elazhary, H. 2015. A cloud-based framework for context-aware intelligent mobile user
interfaces in healthcare applications. Journal of Medical Imaging and Health Informatics 5(8)
cluster as a service. In: Cloud Computing: Principles and Paradigms, John Wiley & Sons,
9. Liu, D., Xing, W., Che, X., and Bao, P. 2015. A centralized service discovery approach for
526-535.
10. Han, T. and Sim, K. 2010. An ontology-enhanced cloud service discovery system. In
Proceedings of the International MultiConference of Engineers and Computer Scientists, Hong
Kong, (2010).
In Proceedings of the International MultiConference of Engineers and Computer Scientists,
Hong Kong, (2014).
methods. In Proceedings of the 19th IEEE International Conference on e-Business Engineering,


mobile agents. IFIP Advances in Information and Communication Technology 175 (2005) 59-78.


Index Terms

Computer Science
Distributed Systems

Keywords

Cloud Computing, Cloud Service Selection, Quality of Service