

Middleware-based model for dynamic reconfiguration of web service

ABSTRACT

Dynamic reconfiguration of web services (WSs) is a method to replace WSs in service-oriented architecture (SOA) software system during runtime. The method allows the service requester to replace WSs in their system without interruption of other operations in the system. However, dynamic reconfiguration is a difficult process and attempts to handle the process appropriately are still lacking. In this paper, we propose a middleware-based model to improve SOA dynamic reconfiguration service process during runtime. The model is used as the main standard to outline the dynamic reconfiguration of WSs that can handle quality of service (QoS) requirements and to provide explicit mechanism during pre-, in-, and post-adaptation stages. A self-adaptive tool was developed based on the model to support the dynamic reconfiguration of WSs with minimum human intervention. Finally, an evaluation using an experiment is conducted to evaluate the effectiveness of the model. The evaluation results show that the model supported the dynamic reconfiguration of WSs effectively.

Keyword: Dynamic reconfiguration; Middleware; Web services; SOA