# Study of Optimizing Web Service Composition - Using Genetic Algorithm and Analytical Hierarchy Process


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**ABSTRACT**

The integration of web services is frequently restricted for the incomplete designs of universal description discovery and integration schema. Besides, current web-service description languages can only assist users to retrieve web services based on their functionalities. Unfortunately, both factors prevent the progresses of integrating web services. In the research, the items of web services were chosen for integration according to the service quality which includes payment, duration, reliability, availability and reputation of executing services. For the five service quality, personal weights of each user were evaluated by the technique of analytical hierarchy process. If the number of web services to meet the user ’ s demands found through UDDI searching is small, the best composition of web services would be suggested by applying dynamic programming to take the ensemble quality of integrated services into consideration. On the other hand, if the number of available web services is large, it becomes intractable for dynamic programming to process. The proposed restricted genetic algorithm was used to find the best or near-best composition of web services by simultaneously considering the personal weights of web quality for a user and the specified composition condition of each individual web service. Experimental results illustrated the effectiveness and efficiency of the proposed mechanism to solve the composition of web services.



Keywords : 網路服務組合;層級分析法;基因演算法;動態規劃演算法


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