

Toward Autonomic Web Services Trust and Selection

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ABSTRACT

Emerging Web services standards enable the development of large-scale applications in open environments. In particular, they enable services to be dynamically bound. However, current techniques fail to address the critical problem of selecting the right service instances. Service selection should be determined based on user preferences and business policies, and consider the trustworthiness of service instances.

We propose a multiagent approach that naturally provides a solution to the selection problem. This approach is based on an architecture and programming model in which agents represent applications and services. The agents support considerations of semantics and quality of service (QoS). They interact and share information, in essence creating an ecosystem of collaborative service providers and consumers. Consequently, our approach enables applications to be dynamically configured at runtime in a manner that continually adapts to the preferences of the participants. Our agents are designed using decision theory and use ontologies. We evaluate our approach through simulation experiments.