Flexible Matchmaking of Web Services Using DAML-S Ontologies

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ABSTRACT

Service discovery is one of the major challenges in the emerging area of Service Oriented Computing (SOC), which promotes the notion of service as the basic brick for the development of next generation distributed heterogeneous software systems. State-of-the-art matchmaking algorithms for Web services range from algorithms based on the DAML-S Service Profile to improved ones based on the DAML-S Service Model. In this paper we propose a new technique for Web service discovery which features a flexible matchmaking by exploiting DAML-S ontologies. Our algorithm allows for partially matched services to be discovered by addressing issues such as: (1) fine-grained matchmaking at the level of atomic processes rather than at the entire service level as in previous approaches, (2) multiple runs of services, and (3) the fact that non-trivial requests can only be satisfied collectively by a set of services rather than by a single execution of a single service. In this way we extend the matchmaking process between queries and advertisements from one-to-one to one-to-many.