Bayesian dynamic scheduling for service composition testing

Résumé du projet de recherche (Langue 1)

In present times connectivity between systems becomes more and more present and essential. It removes human mediation and allow complex distributed systems to autonomously complete long and complex tasks. SOA or Service Oriented Architecture is a model driven contract based approach that allow legacy systems to collaborate by messages exchange. Collaboration, here, is a key word in the sense that multiple organisation can, with this approach, automate services exchanges between there systems without putting at risks their confidentiality (Data and processes internal work). This cause to encounter the first difficulty, because if there are exchanges between the different partners, the inner-processes resulting in the exchange information is restricted to some partners and therefor to some of the testers. That put us in a grey-box testing case where the systems are black-boxes and only the message exchange is visible (most of the time anyway). That put us in a grey-box testing case where the systems are black-boxes and only the message exchange is visible. That is why we propose a stochastic approach using Bayesian Inference to test the architectures. The second Challenge is the size of the SOA. Since the systems are connected by loosely coupling them two by two according to SOA Specifications, SOA can contain a very important number of participant (system). In Fact most of the existing SOA are very important in there size. The size of the SOA is reflected in the complexity of the Bayesian inference. This second challenge constraints us to search for better solution for the Bayesian Inference. In order to cope with the size and density of the BN for even small services architectures, techniques of model-driven inference by compilation that allows quick generation of arithmetic circuits directly from the services architecture model and the test suite are being developed.