Cost-effective testing for critical off-the-shelf services.

Summary: Defining cost-effective verification and validation tools is one of the biggest research challenges of the area. Such tools speedup and reduce the cost of the assessment of Off-The-Shelf (OTS) software components that must undergo proper certification or approval processes to be used in critical scenarios.

Previously we introduced the design of framework for testing of critical OTS applications and services, to improve reusability, thus aiming to reduce testing time and costs. In this paper we present an implementation of the framework that allows applying, in a cost-effective fashion, functional testing, robustness testing and penetration testing to web services. We present details on the implementation and we describe the procedure to use the framework to conduct testing campaigns in web services. Finally, the framework usability and utility is demonstrated based on a case study.

Keywords: testing; monitoring; critical applications; verification and validation; certification; assessment

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