Wissenschaftliche Hilfskraft: Continuous security testing of cloud services

Continuous security testing of cloud services, e.g. of software-as-a-service (SaaS) aims at continuously validating whether a cloud services adheres to a set of security requirements. Since cloud services are composed of existing technologies, e.g. SaaS applications make heavy use of web application technologies, validating security requirements with the help of available testing methods, e.g. web application testing tools, seems evident. Yet the main major focus of existing security testing tools lies on automated but static testing, e.g. triggering a test as part of a web application’s development life cycle.

At Fraunhofer AISEC, we develop methods and tools to conduct continuous security audits of cloud services. We are looking for motivated students to support this project. The working week is 40 hours which can be increased if required. Main tasks involve:

- Discovery and analysis of existing security testing tools suitable to be applied to different cloud service types (i.e. SaaS, PaaS, IaaS, or combinations thereof)
- Integration of selected tools in our existing cloud testing framework
- Design and implementation of simulations to run experiments
- Participation and contribution to scientific publications in context of continuous cloud security testing

In-depth knowledge of the above topics is not required but initial familiarity is appreciated (details see Prerequisites). We welcome if students introduce own ideas to our project and we encourage creative working. As a future prospect, there is the opportunity of writing a Master’s or Bachelor’s Thesis in cooperation with AISEC.

Prerequisites

- (required) good general programming skills (python, shell scripts etc.), in particular in Java
- (appreciated) initial exposure to security testing tools, e.g. Metasploit, Burp, Kali Linux, OWASP ZAP etc.
- (appreciated) initial exposure to OpenStack, Amazon AWS or similar cloud service providers

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