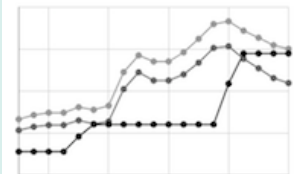Datum: 2012-12-11

Bachelorarbeit/Studienarbeit

Quantification of the Impact of Elastic Cloud Environment Properties on IDS Benchmarking Metrics

Motivation

The wide migration to the increasingly popular virtualized cloud environments is heavily challenged by security concerns. In order to reduce the chance for security breaches, the research and the industrial communities have developed novel IDSes that are specifically designed to operate in virtualized environments. In order to accurately measure the performance of these IDSes, one needs to take into consideration the novel elastic properties of cloud environments (i.e., the ability to provide resources to an IDS during operation) that apply exclusively to them. Thus, one needs to empirically measure the impact of cloud environment elastic properties on an IDS performance in order to demonstrate the magnitude of such impact. On a long-term basis, such undertaking would support further research towards more accurate quantification of performance of IDSes for virtualized cloud environments.

Goals

The central focus of this thesis is to measure and to consequently compare the performance of an IDS for virtualized environments in terms of its ability to detect attacks in two scenarios: (i) when the IDS is deployed in a realistic virtualized environment *without* elastic properties; and (ii) when the IDS is deployed in a realistic virtualized environment *with* elastic properties (e.g., the IDS may be provided with computing and/or memory resources during operation). The comparison of the measured IDS performance results should represent an analysis which carefully investigates the impact of the previously mentioned elastic features on the measured IDS performance metric values. The experiments in scope of this thesis will be performed in state-of-the art virtualization platforms and involve use of novel intrusion detection systems.

- **Get hands-on experience on intrusion detection systems**
- **Work with state-of-the-art virtualized platforms and IDSes**
- **Collaborate within SPEC Research Group**
- **Excellent working environment and intensive mentoring**

Duration
4 Months

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