

Thesis
M.Sc.

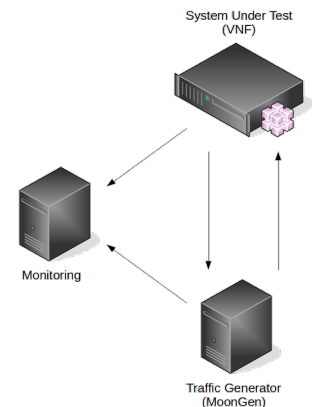
Guided
Research

Benchmarking of Docker-based Network Functions

Motivation

Network Function Virtualization (NFV) is considered an approach to tackle challenges in networking: Functionality that has been provided by dedicated hardware boxes (like NAT or Firewalls) is now executed on (virtualized) x86 hardware. Docker containers provide the circumstances for easy deployment, replication, and management of different functionalities. To manage the deployment of Docker containers with certain network functions it is important to know their performance limitations.

This activity is placed in the context of the SENDATE project. The goal of the SENDATE research program is to provide the scientific, technical, and technological concepts and solutions for future networking.



Your task

Objective of this thesis is to elaborate the state of the art in performance benchmarking of network functions. Measurements will be done in the Baltikum Testbed. Given the tools in the Baltikum Testbed, existing tests shall be applied to simple existing network function deployed via docker containers. These tests should be combined into a NFV-Benchmark that can be applied to different systems under test. The results shall be compared to existing measurements of full virtualized setups and natively running network functions and to measurements of new memory mapping frameworks.

The thesis contains the following work packages

- Familiarization with literature, testbed, and benchmarking state-of-the-art
- Setting up different network functions with Docker
- Measure the performance of these setups
- Compare penalties for Docker encapsulation (compared to natively deployed functions) and benefits for light virtualization (compared to full virtualization)
- Write your thesis

Before this topic can be taken, further clarification and specification of tasks has to be made. In case you are interested do not hesitate and contact

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