Chair of Network Architectures and Services
Department of Informatics
Technical University of Munich

Thesis M.Sc.

Guided Research

Analyzing the Value of Network Monitoring Information

Motivation

Network Function Virtualization (NFV) is considered an approach to tackle challenges in networking: Functionality that has been provided by dedicated hardware boxes is now executed on x86 hardware. Resources can be added dynamically whenever capacity usage demands for additional computational power. This requires a management system to keep track of the resource usage.

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.

The thesis is done in collaboration with Infosim®, a company with expertise in network management. Selected advisor meetings are held together with software engineers from Infosim® that provide the required information about real world deployments. A visit to the company in Würzburg can (but does not need to) be made part of the thesis.

Aufgaben

Objective of this thesis is to evaluate the cost for requesting performance information (e.g. throughput or CPU load) about network functions via protocols like SNMP, NETCONF, or OpenFlow Statistics. Measurements will be done in the Baltikum Testbed. On the other side the value (e.g. in terms of precision and expressiveness) of the obtained information has to be analysed. The findings should be modelled and used for a evaluation of the trade-off between optimizing based on the gathered information and performance decrease due to monitoring. Finally monitoring costs may be tuned (e.g. with caching, or approximation) and evaluated in terms of effectiveness.

The thesis contains the following work packages

- Familiarization with literature, testbed, and use cases
- Setting up different devices (e.g. Linux + SNMP daemon, OvS, KVM)
- Measure and model the impact of statistic requests on the data plane performance
- Write your thesis

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