**Thesis B.Sc.**

IDP

A Framework for automatic Service Curve Derivation of Network Devices

Motivation

Network Calculus [1] provides worst case end-to-end latency guarantees for flows in networks. Network devices are modeled using a service curve, which represents the minimum amount of service this node can give to a flow. Accurate service curves are important for the calculation of a tight end-to-end delay bound. However, accurate service curves are not generally known for a given device and device functionality. Usually, only a worst case estimation of the service curve is known and used. Therefore, the calculated bounds are not sufficiently tight.
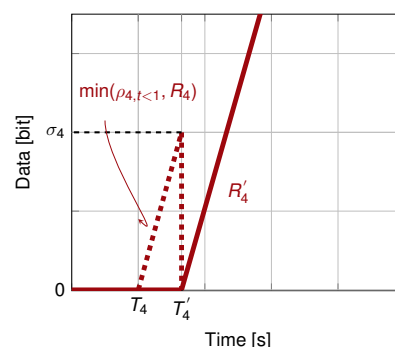
This thesis takes a measurement based approach to solve this problem. You will write a framework to automatically measure the service provided by different network devices under different network and traffic conditions. Those measurements can be used to derive accurate service curves.

[1] https://en.wikipedia.org/wiki/Network_calculus

Your Task

- Compile a list of interesting network device functionalities as well as network- and traffic conditions
- Write a framework to automatically perform measurements with this list as input
- Derive service curves from measurement results
- Verify your results

Requirements

- Knowledge of Linux, Bash, and Python

Contact

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