

Thesis  
B.Sc.

Thesis  
M.Sc.

# Virtualized networking

## Motivation

Performing measurements in networks to control values such as latency, throughput, and reliability in different setups is important to verify new opportunities. Different ways are available such as rebuilding a complete network on hardware, which is the way where the most reliable results can be produced, but which is difficult to use with fastly changing topology requirements. Other possibilities are network emulators such as Mininet [1] or network simulations such as ns3 [2]. These results are not always near to a real network. To overcome those problems, the idea is to build a network using KVM virtualization and low-latency parameter. To use this method further in research, measurements and experiments on different values such as latency need to be performed and compared to similar scenarios in Mininet for example to proof if using direct hardware supported emulation instead of complete emulation such as in Mininet is improving the results of the data. This thesis is about emulation using virtual machines and hardware support. You will build different VM setups and network topology to evaluate the impact of various settings and optimization techniques on the different measurement possibilities and verify differences to the same setup in other solutions. As virtualization platform is KVM used [3].

## References

- [1] <http://mininet.org/>
- [2] <https://www.nsnam.org/>
- [3] [https://www.linux-kvm.org/page/Main\\_Page](https://www.linux-kvm.org/page/Main_Page)

## Your Task

- Getting familiar with KVM and virtualized networking
- Setting up several scenario networking topologies to perform measurements on
- Performing experiments to measure data such as latency or reliability
- Compare the data to already presented measurements in other emulated networking environments

## Requirements

- Experience working with Linux and bash (or similar)

## Contact

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