Robust Software Defined Networks

Motivation

Software Defined Networks (SDNs) is an emerging and very promising new computer networking paradigm (e.g. for data centers). The control plane of SDNs needs to be highly available and fault-tolerant, even if they are implemented across unreliable data planes (switches and links). Such advanced control planes are the focus of this master thesis.

You would be required to design, develop, and evaluate a robust control plane for SDNs. A special emphasis would be given to distributed algorithms that are needed for this implementation of such a control plane.

Challenge

This thesis targets the design and implementation of an SDN control plane. You need to devise algorithms to design such a control plane, analyze the properties and correctness of your algorithm, and then implement it and test it in practice, using Mininet. The key functionalities include:

- topology discovery,
- construction of routing rules,
- redundancy provisioning, and
- load balancing of network management loads.

You can conduct this thesis individually or as a team of two students. We will adapt the content accordingly. For details and further questions please contact us.

Background & Requirements

- Computer Science or related programs
- Courses in distributed systems
- Good programming skills

Environment

We offer you a great work atmosphere, motivated advisors, and a coffee machine or tea if you prefer.

Contacts

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