TECHNISCHE UNIVERSITÄT DRESDEN

Fakultät Elektrotechnik und Informationstechnik
Institut für Nachrichtentechnik
Juniorprofessur für Haptische Kommunikationssysteme
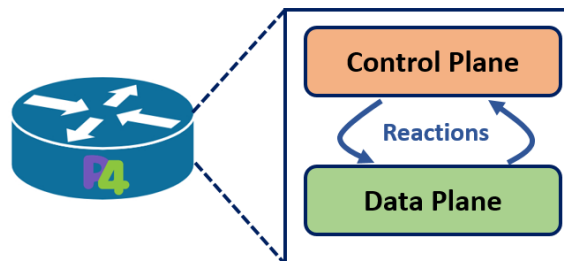Jun.-Prof. Dr.-Ing. Giang T. Nguyen

Task Description for Student/Diploma/Master Thesis

Topic: *Improving The Performance of Ractive Programable Network Devices*

Description: Traditionally, applications are deployed on general-purpose servers. Recently, modern network devices such as Tofino switches are able to deploy applications with line-rate processing. However, applications on programable network devices have the abilities to rapidly react to the unexpected network behaviors such as link failure or traffic overload, thus so-called reactive programmable network devices. This requirement leads to the involvement of network control with low latency.

Recent studies such as Mantis have been proposed to employ switch's CPU (Central Processing Unit) to provide control programs that reactive to unexpected network behaviors. To ensure the line-rate processing of applications, the goal of this work is to futher reduce the reactive time of control programs.

Tasks:
- Literature review
- Find a research problem (optional)
- Propose a solution
- Evaluate the proposed solution
- Write up a report

Requirements:
- Basic knowledge of computer networks
- Basic knowledge of Linux
- Programming languages: C and Python.

Language: English

Our offer that helps students focus on their work:
- Testbed
- Measurement tools and scripts

Keywords: state transfer, programmable switches, P4

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