Towards designing an optimal Multipath scheduler to handle dynamic wireless links

In order to fully utilize the capabilities of a LiFi-RF Heterogeneous network, the client devices should be capable of using multiple network interfaces simultaneously. Thanks to multipath solutions like MPTCP, this is possible.

The challenge in a MPTCP-enabled heterogeneous network lies in designing a policy to schedule data packets onto the multiple paths with heterogeneous characteristics (eg. delay, packet loss). These heterogeneous characteristics result in "out-of-order" (OFO) packets leading to long re-ordering delays at the receiver.

This work involves

- Designing an MPTCP scheduler that schedules packets optimally to minimize network delay and handle the dynamicity of heterogeneous links
- Implementing the scheduler in the Linux kernel
- Performing extensive evaluations with Mininet and hardware

If you are interested in this work, please send an email with a short introduction of yourself along with your CV and grade transcript.

Prerequisites

- Strong Python and C++ programming skills
- Experience with optimization problems
- Experience with Linux networking

Advisors

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