Chair of Network Architectures and Services
Department of Informatics
Technical University of Munich

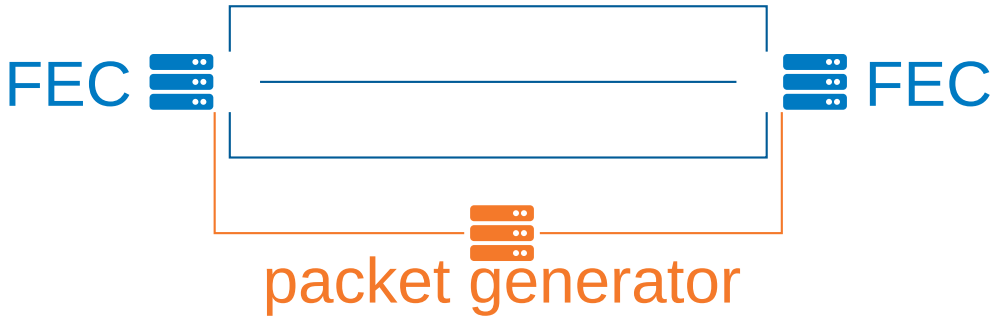
Thesis B.Sc. | Thesis M.Sc. | IDP, Guided Research

Improvements to Forward Erasure Correction Coding

Introduction

Forward error correction (FEC) is a method to add redundant data before transmission over an unreliable network to account for potential packet losses ("erasures") and to avoid retransmissions. We are using DPDK and Galois-field libraries to achieve high-performance reliable network transmission over one or multiple paths. There is an alternative, advanced coding approach available which needs to be integrated into a common code base. Also other optimization opportunities have already been identified. In this thesis you will work on yet to be discussed improvements of an existing FEC implementation.

Current Setup



Possible Tasks (TBD)

- integration of convolutional coding schemes
- dynamic adjustment of coding parameters
- removal of unnecessary memory copies
- add compatibility with network emulators
- parallelization

Approach

- agree on a set of tasks in discussion with the advisors
- implement and integrate the improvements into the code base
- assess the impact of your changes based on reproducible measurements

Requirements

- experience in systems programming in C or C++
- structured work style

Contact

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