Bachelor-/Master thesis on the subject of

**Practical Evaluation of a self-stabilizing skip graph**

In 2012 Clouser, Nesterenko and Scheideler\(^1\) proposed a self-stabilizing peer-to-peer network maintenance algorithm called Tiara. The protocol is deterministic and therefore achieves exact performance bounds. It is based on a sparse 0-1-skip list which is extended to a skip graph. Their paper provides proves on the stabilization process and on the correctness. However, the question of how good Tiara performs in contrast to other peer-to-peer networks is completely excluded.

The goal of the master thesis is to implement the Tiara protocol in the simulator peerfactSim.KOM\(^2\) and to compare it with a well-known peer-to-peer overlay like for instance Chord. The simulator was enhanced at the University of Paderborn and therefore some overlays (Chord, CAN, Pastry) that can be used for the evaluation already exist. The simulator is able to encapsulate the overlay layer from all other layers, such that the thesis can focus on implementing Tiara.

Depending on the simulation results, there is the chance to tackle some of the still open problems of Tiara, like churn resistance.

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\(^2\) [http://www.peerfact.org/](http://www.peerfact.org/)