Throughput-Centric Routing Algorithm Design

D. Towles, W. Dally, and S. Boyd

Proceedings of the ACM Symposium on Parallelism in Algorithms and Architectures (SPAA), pages 200–219, June 2003.

- obliv_route.pdf

The increasing application space of interconnection networks now encompasses several applications, such as packet routing and I/O interconnect, where the throughput of a routing algorithm, not just its locality, becomes an important performance metric. We show that the problem of designing oblivious routing algorithms that have high worst-case or average-case throughput can be cast as a linear program. Globally optimal solutions to these optimization problems can be efficiently found, yielding provably good oblivious routing algorithms.