Chair of Communication Networks
TUM Department of Electrical and Computer Engineering
Technical University of Munich

Master's Thesis

Cost Optimized Optical Network Migration Strategies for Long-Haul Optical Networks

With 5G commercial deployments now a reality, combined with the push for digitalization in a post-COVID era, the use-cases and demands for high-speed internet connectivity is ever-increasing. Many use-case are bound by ultra-low latency and high data-rate requirements. This means that the backbone long-haul optical networks need to be also upgraded, to support the traffic demands which will increase in the coming years.

Depending on the dark fiber avalability in the region under study, fiber infrastructure can be upgraded by deploying parallel systems and lighting new fibers. However, a move towards commercial deployment developement of more than C-Band optical communication is a strong contender to increase capacity, without investing in leasing new dark fiber.

In this Master Thesis, we approach this upgrade problem from a transport network operator's perspective and conduct several network planning study, to come up with an upgrade strategy, which is beneficial to operators, so that they can still offer optical transport services to their clients, while maintaining profitability.

Prerequisites

1. Currently enrolled MSCe or MSEI student
2. Background in communication networks
3. Basic knowledge of techno-economics
4. Knowledge of statistics and basic fundamental research
5. Independent worker
6. Good programming skills (Java or Python)

Advisors

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