Chance Constraint Models for Multi-Failures in the Design of Communication Networks

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For a given network topology we suppose that the data stream is disrupted by failure of components of the network or exterior forces leading to failures, which both can occur with a certain probability. For each node pair of the network a routing subgraph has to be determined such that the overall loss of data due to events that lead to failures is small with high probability. We present a cutting plane and a robust approach which yield reasonably good solutions assuming that the failures are caused by at most two events.