Improving network availability- a minimal cut set approach

A **cut set** is a set of components that, by failing, causes the system to fail.

A cut set is **minimal** if it cannot be reduced without losing its status as a cut set.

For a source-destination pair in a network, the ideal conditions for maximum availability are:

a) Least possible number of minimal cut sets.
b) Largest possible size for the minimal cut sets.

This work aims to find the best links that, when added to the network, improve the network availability by increasing the size of the minimal cutsets. Two methods are possible- an ILP and a heuristic.

The final result must be a performance comparison of the two methods.

**Prerequisites**

Communication Network Reliability course, Python, Integer Linear Programming

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