

Network tomography is the problem of discovering the delay and loss rate of the internal links of a network, assuming the internal nodes are not cooperating. The first step to solving this problem is finding network topology. Well-known tools such as *traceroute* solve this problem, however they depend on cooperation by the internal nodes.

This thesis studies the problem of topology identification without relying on the cooperation of the internal nodes of the network. Our work is based on a probing method called the *sandwich* method. We suggest a novel probing scheme called TSP that is based on end-to-end unicast delay measurements and combines the ideas of *sandwich* and *traceroute*. We also develop two topology inference algorithms to find the topology of the network. One of the algorithms uses *sandwich* data and the other uses TSP.

Our simulation-based experiments show that TSP improves the topology identification process substantially compared to previous methods.