The Theory of Computation

Bernard M.E. Moret

Addison-Wesley-Longman, 1998

Solution Manual
Chapter 7, Additional Problem 8

The problem is clearly in NP. We prove it NP-complete by restricting it to *Partition*. Let the graph have 3 vertices and two edges, with the middle vertex being the designated vertex, and let the sum of all $w(f_i)$ be even. The fire trucks must be assigned either to the left-end vertex or to the right-end vertex; the response time will simply be the larger of the sums of the $w(f_i)$ on each side, since the trucks will have to move strictly sequentially on each side.