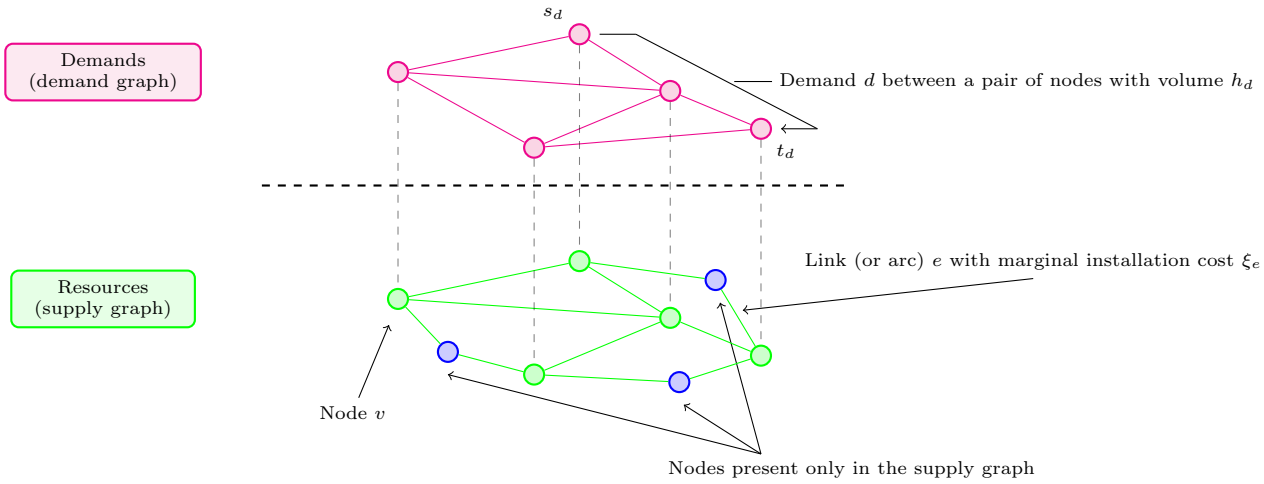
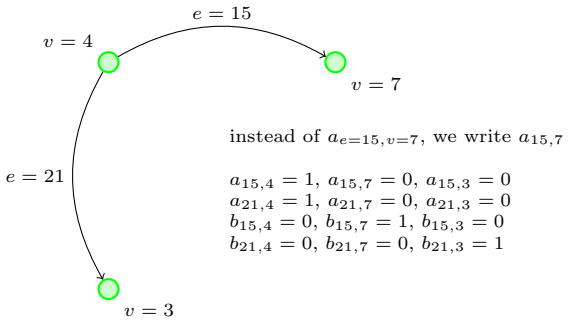
Problem of the minimum cost flow allocation and resource dimensioning in a capacitated network CFAP:

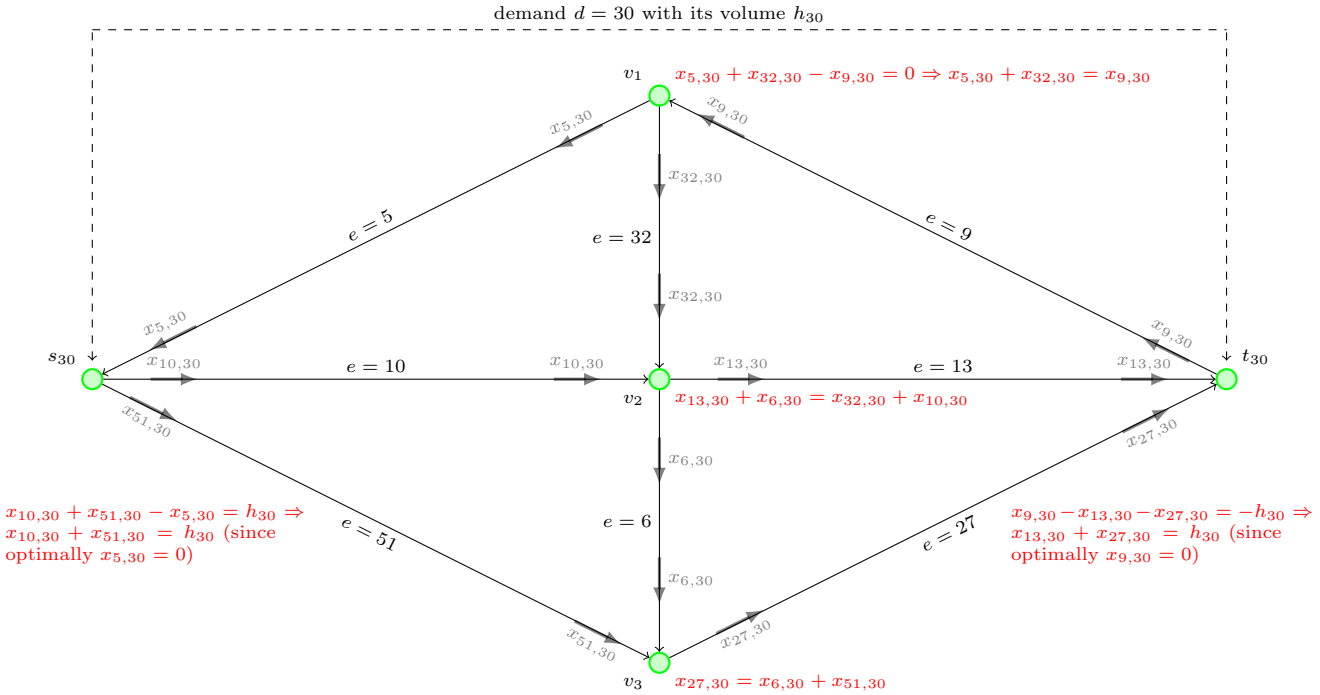


Node-link (N-L) formulation:

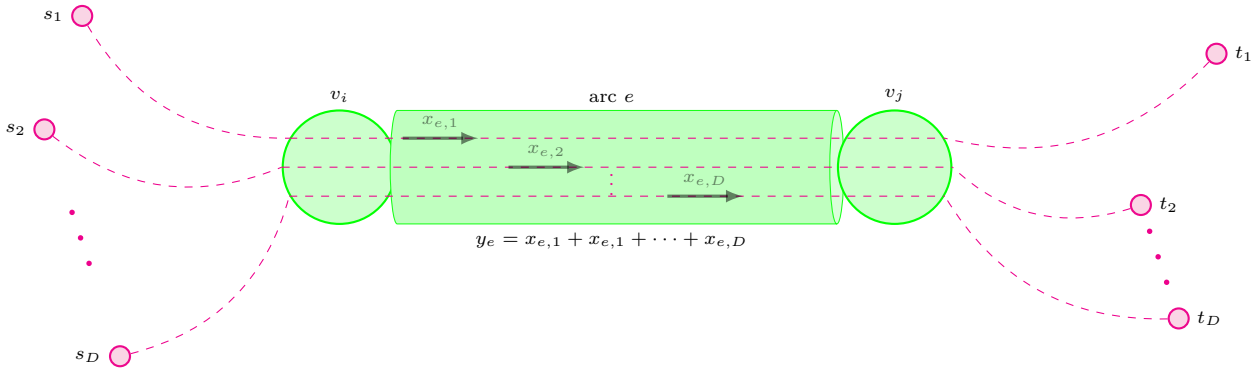
Constants a_{ev}, b_{ev} concerning **arcs** e:



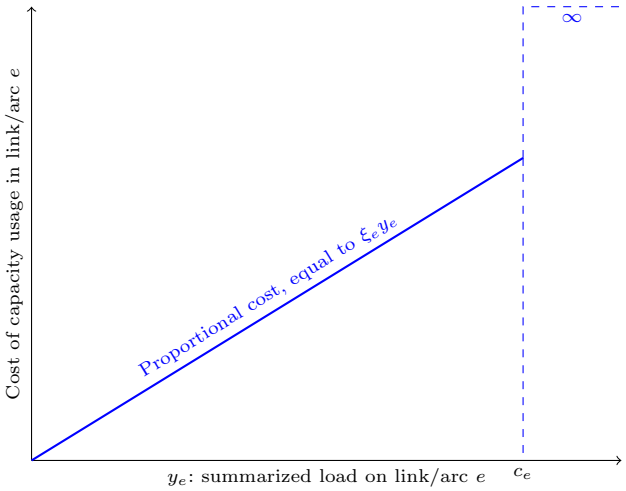
Variables x_{ed} and constraints $\sum_e a_{ev}x_{ed} - \sum_e b_{ev}x_{ed} = \begin{cases} h_d & \text{if } v = s_d \\ 0 & \text{if } v \neq s_d, v \neq t_d \\ -h_d & \text{if } v = t_d \end{cases}$ $d = 1, 2, \ldots, D$ $v = 1, 2, \ldots, V$:



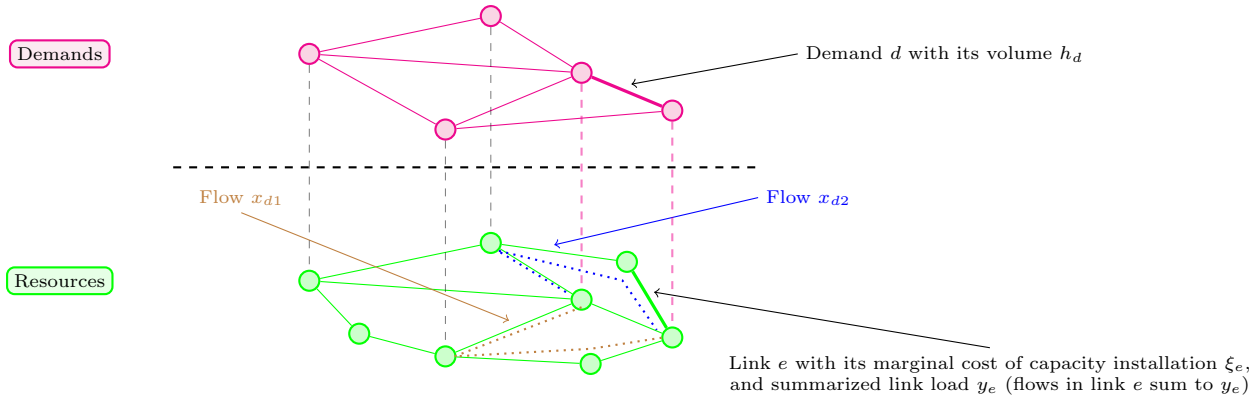
Variables $y_e = \sum_d x_{ed}$:



Linear cost of capacity usage:



Link-path (L-P) formulation:



Each demand d must be satisfied with the assumed volume: $h_d = \sum_p x_{dp}$