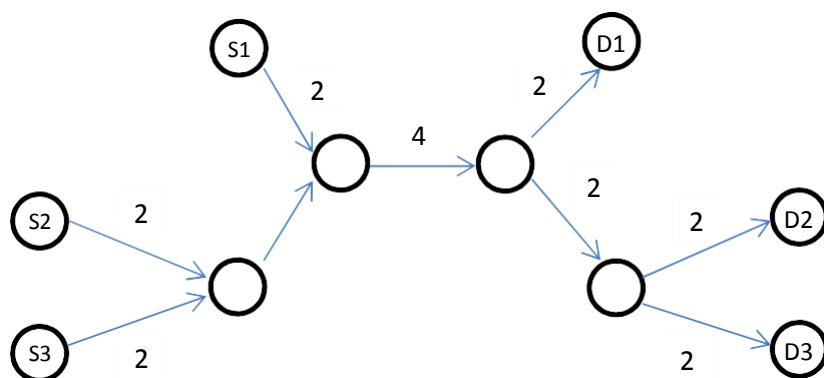


Data Networks project

There are three sessions in a network using 4 intermediate routers. The link capacities are shown on the links.



Part 1. Find the proportionally fair rate vectors of the source rates solving the utility maximization problem with CVX. You can find all information you need to know about CVX from here: <http://www.stanford.edu/~boyd/cvxbook/>

Part 2. Solve the dual problem using the gradient descent method. Plot the source rates versus the iteration number of three sources and show the convergence.

Part 3. Solve the problem using Kelly's algorithm. For the link marginal delay function, use

$$g_l(y) = \frac{1}{(C_l - y)^2}.$$