CS765 Project Part-1
Simulation of a P2P Cryptocurrency Network

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1 Questions

2. What are the theoretical reasons of choosing an exponential distribution for generating transactions?

- The Poisson distribution models events occurring with a constant mean rate (λ) and independent of the time since the last event. Transactions follow this memorylessness property. So, the inter-arrival time of generating transactions follows an exponential distribution (with mean inter-arrival time $\frac{1}{\lambda}$).

4. Why is the mean of d_{ij} inversely related to c_{ij}? Give justification for this choice.

- Link speed (c_{ij}) measures the number of bits that any of the two nodes can push through their connection. Queuing delay (d_{ij}) is the time for which a message waits in a queue at the respective node. If the link speed is less, then a message takes longer to transmit, and longer the waiting time of other messages at that node. Hence the inverse proportionality.