DISI – University of Trento

Master in Computer Science AA 2014/2015

Simulation and Performance Evaluation

Simulation of a simple queuing network

Configuration for Simone Buratto

Arrival Process

Customers arrive following a Weibull distribution with $\lambda = 3$; $k = 1.5$, i.e., the interarrival times of customers are i.i.d. RV that follows the law

$$f_T(t) = \frac{k}{\lambda} \left(\frac{t}{\lambda}\right)^{k-1} e^{-(\frac{t}{\lambda})^k}; \quad t \geq 0; \quad \lambda = 3; \quad k = 1.5$$

Stations

QS1: $-/\text{M}/\infty$; average service rate (per server) $\mu = 0.3$.

QS2: $-/\text{G}/1/5/\text{FIFO}$; the service time follows also a Weibull distribution, but with $\lambda = 1$; $k = 1.5$, so that the average service time of this queue is three times faster than the average arrival rate in the network.

QS3: is identical to QS2.

Routing probabilities

$p_{i,j}$ is the probability that a customer services in queue i goes to queue j.

		j		
		1	2	3
	1	0.0	0.5	0.5
i	2	0.5	0.0	0.0
	3	0.5	0.0	0.0
		p_{ij}		