

DISI – UNIVERSITY OF TRENTO

Master in Computer Science AA 2014/2015

Simulation and Performance Evaluation

Simulation of a simple queuing network

Configuration for Matteo Bridarolli

Arrival Process

Customers arrive following a Weibull distribution with $\lambda = 2$; $k = 0.5$, i.e., the interarrival times of customers are i.i.d. RV that follows the law

$$f_T(t) = \frac{k}{\lambda} \left(\frac{t}{\lambda} \right)^{k-1} e^{-\left(\frac{t}{\lambda}\right)^k}; \quad t \geq 0; \quad \lambda = 2; \quad k = 0.5$$

Stations

QS1: $-/M/\infty$; average service rate (per server) $\mu = 0.1$.

QS2: $-/G/1/5/FIFO$; the service time follows also a Weibull distribution, but with $\lambda = 1$; $k = 0.5$, so that the average service time of this queue is two 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
i	1	0.0	0.5	0.5
	2	0.0	0.0	0.5
	3	0.0	0.5	0.0
		p_{ij}		