

DISI – UNIVERSITY OF TRENTO

Master in Computer Science AA 2014/2015

Simulation and Performance Evaluation

Simulation of a simple queuing network

Configuration for Lorenzo Ghio

Arrival Process

Customers arrive following a Weibull distribution with $\lambda = 1.5$; $k = 0.6$, i.e., the interarrival times of customers are i.i.d. RV that follows the law

$$f_T(t) = \frac{k}{\lambda} \left(\frac{t}{\lambda} \right)^{k-1} e^{-\left(\frac{t}{\lambda}\right)^k}; \quad t \geq 0; \quad \lambda = 1.5; \quad k = 0.6$$

Stations

QS1: -/G/2/20/FIFO; the service time is uniformly distributed between 1 and 4.

QS2: -/M/1/50/FIFO; average service rate $\mu = 1$.

QS3: -/M/1/50/FIFO; average service rate $\mu = 2$.

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	0.2	0.2
	2	1.0	0.0	0.0
	3	1.0	0.0	0.0
		p_{ij}		