Statistical modelling, extremes and stochastic processes

Inference of the workload moments in a piecewise-stationary $M_t/G_t/1$ queue with probing

Gonçalo Jacinto[1], Nelson Antunes[2] e António Pacheco[3],

[1] CIMA/IIFA e Departamento de Matemática, Universidade de Évora, gjcj@uevora.pt

[2] CEMAT e Departamento de Matemática, Universidade do Algarve, nantunes@ualg.pt

[3] CEMAT e Departamento de Matemática/IST, Universidade de Lisboa, apacheco@math.ist.pt

Due to probing of Internet traffic, a renewed interest in statistical inference in queueing theory has been observed in recent years [1]. Reflecting the new settings to which inference is applied, there is interest in both parametric and nonparametric estimation, using only partial information of the system (i.e., the arrival times, service times and departure times of probe packets) [2]. We have estimated the arrival rate and the service time moments of the original traffic in a $M/G/1$ queue with probing [3]. In this presentation, we will focus on the estimation of the moments of the workload process in a piecewise-stationary $M_t/G_t/1$ queue [4]. The statistical properties of the estimators and the impact of the inter-arrival times between probes on the estimation are discussed.

References

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