

Call for papers on

Queueing Models for Fair Resource Sharing

Special Issue of Queueing Systems

Background

Over the past several years, the Processor-Sharing (PS) paradigm has attracted renewed attention as a convenient tool for evaluating the flow-level performance of bandwidth-sharing mechanisms such as TCP. Besides providing crucial insights, the ordinary PS model has also catalyzed advances in the analysis of more complex scenarios. For example, the actual bandwidth shares may significantly vary among competing flows, either due to the impact of heterogeneous feedback delays or loss rates, or due to explicit differentiation based on Quality-of-Service considerations or tariff structures. Extensions of the egalitarian PS model, such as the Discriminatory Processor-Sharing discipline, have been proposed for modeling the flow-level performance in such asymmetric scenarios. In addition, TCP flows typically traverse several links, causing intricate forms of interaction. The latter network scenarios give rise to bandwidth-sharing models which differ from traditional queueing networks because of the simultaneous possession of multiple shared resources. The integration of elastic and streaming traffic and the idiosyncrasies of wireless data communications have recently prompted yet further extensions of the standard PS model.

Scope

Proper dimensioning and Quality-of-Service provisioning in integrated networks requires a thorough understanding of basic models for fair resource sharing as well as extensions to asymmetric disciplines, network scenarios, and integration of heterogeneous traffic categories. A broad range of valuable results have been obtained, such as insensitivity properties, stability conditions and various forms of asymptotics. Yet, the performance evaluation of fair and efficient resource sharing strategies continues to pose a wide spectrum of challenging research issues.

Submissions

Queueing Systems solicits original research contributions for possible publication in a special issue on **Queueing Models for Fair Resource Sharing**. Manuscripts may be submitted as Postscript files via email to the guest editors Sem Borst and Sindo Núñez-Queija (sem,sindo@cwi.nl). The usual manuscript preparation and copyright transfer guidelines for *Queueing Systems* apply (these may be found in the back of the journal or via <http://www.kluweronline.com>). As is customary for such special issues, authors of submitted papers will play a key role in the review process.

Important dates

Submission deadline: June 1, 2005

Acceptance notification: October 15, 2005

Final version due: December 1, 2005

Publication special issue: April 2006