

Call for papers on

Polling Systems

Special Volume of the *Annals of Operations Research*

Background

A typical *polling system* consists of a number of queues, attended by a single server in a fixed order. Polling models are applicable in situations in which several types of users compete for access to a common resource. The ubiquity of polling systems can be observed in many applications, e.g., in computer-communication, production, transportation, traffic, order picking, automated guided vehicles, health care and maintenance systems.

To illustrate the fact that polling systems have become a powerful tool for the performance analysis of a wide variety of applications, we cite Hideaki Takagi, one of the fathers of the success of polling models¹: *The analysis of polling models gained momentum as queueing systems that are easy to understand, analyze, and extend. The study has been accelerated largely by applications to the modeling of communication, manufacturing and transportation systems. I believe that it is one of the few successful theoretical performance evaluation models developed in the last decades.*

The main reason for there being a tidal wave of papers on polling models in the past can be found in the diversity of applications, which has led to innumerable enhancements of the basic cyclical polling system. Such enhancements gave birth to interesting new queueing theoretic problems which in turn stimulated research in various directions. The goal of this special volume is to identify the current state-of-the-art in the performance analysis of polling systems and to envisage future opportunities and challenges in this research area.

Scope

This special volume on polling systems is directed at both academicians and practitioners. Topics of interest include – but are not limited to – the following:

- Evaluation and optimization of polling systems
- Asymptotic and transient analysis of polling systems
- Analysis of the stability of polling systems
- Pseudo-conservation laws and decomposition results
- Simulation of polling systems
- Innovative applications of polling systems and case studies
- Analysis of networks of polling systems
- Results in vacation queues relevant for polling systems
- Comparison with other multi-queue systems

Submissions procedure

Please find complete submission instructions at <http://www.editorialmanager.com/anor/>. When requested to select an article type, please select “S.I.: Polling Systems”.

Special issue editors

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Important dates

Submission deadline: December 1, 2009

Final version due: August 1, 2010

Publication: Papers will be published online very soon after acceptance.

¹ Takagi, H., (2000). Analysis and application of polling models (In Performance Evaluation: Origins and Directions, G. Haring, C. Lindemann and M. Reiser (eds.), Lecture Notes in Computer Science, vol. 1769, Springer, Berlin, pp. 423-442).