

# Modeling a QoS classified communication environment with packet reordering feature\*

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## Abstract

Queueing models are widely used to establish stochastic models for QoS analysis of different communication environments. In [1] the authors created a queueing model to evaluate a sensor network environment with two quality classes of sources. The “Emergency” class represents the sources of very important communication (e.g. fire alarm), and the “Normal” class represents the standard communication (e.g. temperature data). In the model of [1] the “Emergency” class is served by a FIFO queue. The FIFO discipline absolutely excludes the ability of request reordering (i.e. packet reordering). In the QoS investigation the effect of the reordering can not be omitted (see [2]). In this paper we modify the model introduced in [1] such a way, that packet reordering feature will not be neglected. Instead of the FIFO discipline we create a retrial queueing system for both the high priority and low priority class services. The retrial system includes the packet reordering feature, resulting a more appropriate description. Using two retrial queues was introduced in 2012: Avarchenkov at al. introduced an infinite source queueing system with two orbits (see [3]). In this paper the system with two orbits is investigated in a finite source environment. We would like to study how the packet reordering feature effects the system parameters (queue length, service time etc).

*Keywords:* Qos performance evaluation, finite source queueing model, retrial queue

*MSC:* 68M20, 90B15

## References

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