Understanding current and new technologies is a key issue to future trends in packet switched networks such as the Internet. For a long time classic queueing theory delivered important insights in this field. However, since the mid 90's it is well known that the assumption of Poisson-processes in classical queuing theory does not model Internet data traffic accurately.

To overcome this problem new approaches such as effective bandwidths or deterministic network calculs had been developed. Nevertheless, these approaches still have some remarkable limitations. Hence, finding a general and accepted methodology for the performance analysis of packet switched networks is an open challenge.

**Project Goals**

In this project we aim to develop a probabilistic network calculus that effectively takes the statistical multiplexing gain of independent data streams into account. Thus, it can be used as a framework for an efficient end-to-end analysis of communication networks. We want to provide the basics of a comprehensive, powerful yet intuitive theory that allows for new applications in the field of packet switched networks beyond the state-of-the-art theories, for example the established worst-case analysis.

A software tool (in Java) that demonstrates the utility of the stochastic network calculus is available here: [Network Analyzer](http://www.ikt.uni-hannover.de/properbounds.html)

**Project duration:**
01.01.2007 - 30.06.2013

**Bibsonomy show project publications:**
0

**Bibsonomy use tabs to list publications:**
0

**Members:**
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**Project manager:**
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**Project research areas:**
Future Internet
Performance Analysis

**Project type:**
Next Generation Internet

**URL:**
http://www.ikt.uni-hannover.de/properbounds.html

**Research Area:**
Next Generation Internet

**Status of the Project:**