

"Evaluation of Effective Bandwidth Schemes for Self-Similar Traffic"

Abstract:

In this paper, different approximations for the effective bandwidth of self-similar traffic streams are reviewed. Among those, classical approaches originally based on Markovian models are regarded in the context of self-similar traffic. On the other hand a solution is considered that explicitly takes the long range dependent character of the traffic stream into account by using a fractional Brownian motion model. Furthermore, we propose an effective bandwidth scheme that provides a combination of approaches from both domains. In order to achieve an objective comparison of the different schemes, an M/Pareto fluid burst has been chosen as a common traffic model, and the corresponding traffic parameters needed by the different schemes have been derived. A burst level simulation of the same traffic model serves as another reference. The evaluation shows that the accuracy of the results obtained using the different schemes depends very much on the traffic parameters.