

Documents

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Modeling and evaluation of machine learning based network management system for NGN

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Abstract

The recent emphasis on monitoring and managing telecommunication networks in more intelligent and autonomic manner has led to the emergence and popularity of Machine Learning based Network Management Systems. In order to study the behavior and assess the performance of such NMS, it is essential that a suitable modeling and evaluation framework exists. The work presented here addresses this need and proposes an autonomic NMS which employs the prediction capabilities of the Bayesian Networks (BN) models. To achieve this, it formulates and models the BN-based Decision Support System for providing real-time decisions with regard to the Call Admission Control (CAC) problem in the Next Generation Network (NGN) environment. Simulated experiments are performed to verify the suitability and practicality of the proposed models. The novelty and relevance of this research is demonstrated through offline modeling and online performance evaluation of BNAC (Bayesian Networks-based Admission Control) by considering the metrics of Packet Delay, Packet Loss, Queue Size and Blocking Probability. The paper concludes that BNAC approach performs better than the Peak Rate CAC in terms of online CAC functionality. © 2013 IEEE.

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