

# Performance Modeling and Analysis of Core Service Platform for Next-Generation Network\*

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**Abstract:** Aiming at providing evaluation means for the service performance of Core Service Platform for Next-generation network, this paper presents the multi-class closed network performance model based on the message flow for this Core Service Platform. To analysis this model, an approximate mean-valued analysis algorithm for multi-class closed network is proposed, and this algorithm is used to analyze the performance model. Many performance metrics, such as message queue length, sojourn time and throughput in every node in the network, can be obtained by using this algorithm. From these metrics, the bottleneck for restricting performance improving in the network can be located conveniently. This performance model for analyzing the performance of Core Service Platform is validated through simulating, and the approximate algorithm for analyzing the multi-class closed network is also validated in simulation. The approximate algorithm proposed in this paper is a generic analysis method for multi-class closed network analysis, and this algorithm is of great benefit to analyze generic closed queueing network model.

**Keywords:** Performance model, Queueing network, Mean-valued analysis, Parlay

## 1. INTRODUCTION

The next-generation network(NGN) is a service-driven network. In order to provide

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\* The research work in this paper is funded by: (1) the National Natural Science Foundation of China under the contract number 60432010; (2)the Specialized Research Fund for the Doctoral Program of Higher Education (No. 20030013006).

























