Abstract

Following the work by Yue et al., this thesis considers the departure of a multi-traffic network system for a popular communication network where a transmission link is shared by an Available Bit Rate (ABR) application for non-real time traffic and a Variable Bit Rate (VBR) application for real time traffic. It is assumed that the VBR traffic has a higher transmission priority than the ABR traffic. In this thesis, we establish a tractable analytical model of departure processes for such a system. The departure process is characterized by a general queueing model with a non-preemption policy for which the inter-departure times of VBR and ABR are derived, respectively. Since the VBR traffic is only affected when ABR is in service, the analysis is given to describe the departures of ABR, and VBR traffics. Numerical results are conducted to illustrate the system performance with input control of ABR traffic.