

Analysis of (N)-Level Shaper for the VBR video source in ATM

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On the basis of the buffer occupancy level, an (N)-level shaper modulates the output cell rate of the VBR video source by buffering the cells before they enter the network. In this paper, we approximate the cell arrival process model for a single video source by means of the superposition of independent ON-OFF minisources, and the fluid flow approach is used to analyze the performance of the video traffic shaper. We also propose a simple analytical model evaluating the performance of the ATM multiplexer in terms of the cell loss probability when the shaped cell streams generated from each video source are statistically multiplexed on an ATM link. The effectiveness of the proposed shaping mechanism is shown by numerical results, which can be employed to establish design criteria of the video traffic shaper.