A Solution for a Deterministic QoS in Multimedia Systems

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Abstract: We are interested in multimedia systems providing VoD (Video on Demand) and NVoD (Near Video on Demand) with a deterministic Quality of Service (QoS). The first aim of this paper is to define and guarantee the QoS suitable for multimedia systems. We consider sporadic traffics composed of different unicast or multicast flows. The second aim is to propose an admission control ensuring a deterministic guarantee of QoS. The QoS parameters of accepted traffics are met, as long as traffics are in conformance to their specification. This admission control optimizes the guaranteed sojourn times in each visited node to accept more traffics without compromising the end-to-end deadlines of already accepted traffics. We show how to admit a new flow when each visited node cancels the received jitter and schedules flows according to NP-EDF. The complexity of the admission control is shown to be pseudo-polynomial.

Keywords: multimedia system, quality of service, admission control, time constraints, real-time scheduling.

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