

# Supporting Soft Real-time Tasks and QoS on the Java Platform

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The Java platform has many characteristics which make it very desirable for integrated continuous media processing. Unfortunately, it lacks the necessary CPU resource management facility to support Quality of Service guarantees for soft real-time multimedia tasks. In this paper, we present our new Java Virtual Machine, Q-JVM, which brings CPU resource management to the Java platform. Q-JVM is based on Sun's reference implementation. It incorporates an enhanced version of the MTR-LS algorithm in its thread scheduler. Combined with an optional admission control mechanism, this algorithm is able to support QoS parameters such as fairness, bandwidth partitioning and delay bound guarantees, as well as the cumulative service guarantee. Preliminary experimental results show that Q-JVM is backward compatible with the standard version from Sun, has low scheduling overhead, and is able to provide QoS guarantees as specified.