

*A Framework for Streaming Media Retrieval in Computing
Grid Environments*

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ABSTRACT

The role of multimedia application in our day-to-day life has dramatically increased in the last few years. Multimedia streaming is more significant than downloading ways in multimedia applications from bandwidth and delay reasons. Multimedia contents are in nature distributed in nodes of Grid. In computing Grid streaming media are still not well resolved. This thesis proposes an agent-based framework for Grid environments called Grid MSS 2.0. In this framework an agent searches for requested contents by communicating with other agents and in order to retrieve contents related to users' query without delay, an allocation algorithm is used. The approach is that the allocation is done according to available bandwidth of each node. Grid MSS provides a high performance contents streaming framework for a large population of users and ensures the QoS in terms of accessibility, low latency and reliability. To tide over the bandwidth bottleneck and the rate of losing packets, a genetic algorithm is used to find the best nodes with suitable bit rate for sending demanded content to receiver. An improved operator before Crossover in genetic algorithm is presented. The empirical results showed that the framework was much more efficient than a naive SSS method and some other MSS frameworks and also Grid MSS 1.0.

KEYWORDS

Computing Grid environment, Streaming content, Gossip-based protocol, Quality of service, Agent.