GRIDMEDIA: A MULTI–SENDER BASED PEER–TO–PEER MULTICAST SYSTEM FOR VIDEO STREAMING (WedAmPO1)

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Abstract: We present a novel single source peer–to–peer multicast architecture called GridMedia which mainly consists of 1) multi–sender based overlay multicast protocol (MSOMP) and 2) multi–sender based redundancy retransmitting algorithm (MSRRA). The MSOMP deploys mesh–based two–layer structure and groups all the peers into clusters with multiple distinct paths from the source root to each peer. To address the problem of long burst packet loss, the MSRRA is proposed at the sender peers to patch the lost packets by using receiver peer loss pattern prediction. The numerical analysis demonstrates the retransmitting redundancy is upper–bounded by link loss ratio. Consequently, GridMedia provides a scalable and reliable video streaming system for a large and highly dynamic population of end hosts, and ensures the quality of service in terms of continuous playback, bandwidth demanding and low latency. A real experimental system based on GridMedia architecture has been constructed over the CERNET[11] and broadcasting TV programs for seven months.

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**Abstract:**
More than 140,000 end users have been attracted with almost 600 simultaneously being online at Aug, 2004 during Athens Olympic Games.