

## Documents

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**Two dimensional array based overlay network for balancing load of peer-to-peer live video streaming**

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**Abstract**

The live video data is streaming usually in a tree-based overlay network or in a mesh-based overlay network. In case of departure of a peer with additional upload bandwidth, the overlay network becomes very vulnerable to churn. In this paper, a two dimensional array-based overlay network is proposed for streaming the live video stream data. As there is always a peer or a live video streaming server to upload the live video stream data, so the overlay network is very stable and very robust to churn. Peers are placed according to their upload and download bandwidth, which enhances the balance of load and performance. The overlay network utilizes the additional upload bandwidth of peers to minimize chunk delivery delay and to maximize balance of load. The procedure, which is used for distributing the additional upload bandwidth of the peers, distributes the additional upload bandwidth to the heterogeneous strength peers in a fair treat distribution approach and to the homogeneous strength peers in a uniform distribution approach. The proposed overlay network has been simulated by Qualnet from Scalable Network Technologies and results are presented in this paper. © Published under licence by IOP Publishing Ltd.

**Index Keywords**

Balancing loads, Delivery delay, Live video streaming, Scalable networks, Tree-based overlay networks, Two-dimensional arrays, Uniform distribution, Upload bandwidths; Bandwidth, Two dimensional, Video streaming; Overlay networks

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