

Arbitration in a P2P-system

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Abstract

A user of a P2P network provides data and consumes it simultaneously. However, it is possible that a user (so-called "leecher") only gets data but gives nothing in exchange for it. We offer another way of interaction where a user must offer data with the aim to obtain data from other users.

We consider next arbitration procedure. Players who are P2P network users provide an amount of data for exchange. We call this amount a contribution. An arbiter makes contribution too and it is a random value with some known distribution function. The player whose contribution was closest to the value but not less gets this value as a payoff.

Each player tries to maximize her own expected payoff.

An equilibrium condition is derived for this system for arbitrary number of players and arbiters. Numerical examples are presented.