

# A survey of game-theoretic approaches in P2P networks

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## Abstract

Game theory constitutes a mathematical method for rational decision making in competitive and conflicting situations under specified rules, and thus is closely associated with decision theory. The applicability and usefulness of game theory have already been proved in the research area of network optimization. Applications of strategic games arise in the design of communication networks, wireless sensor networks, P2P networks and others. P2P networks consist of autonomous nodes that not only collaborate for sharing and consuming resources but also act independently and governed by selfish motives. Thus, game theoretic solutions lend themselves well for problems arising in P2P networks. The proposed work surveys the recent developments on game-theoretic approaches in P2P networks. We provide a classification of approaches dealing with problems in various areas of P2P systems, such as peer incentives, trust, formation of overlay networks, routing and others.

**Keywords:** Network Optimization, Game Theory, P2P networks