

EquiCast: Scalable Multicast with Selfish Users

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Abstract

Peer-to-peer (P2P) networks suffer from the problem of “freeloaders”, i.e., users who consume resources without contributing anything in return. In this paper, we tackle this problem taking a game theoretic perspective by modeling the system as a non-cooperative game. We introduce EquiCast, a wide-area P2P multicast protocol for large groups of selfish nodes. EquiCast is the first P2P multicast protocol that is *formally proven* to enforce cooperation in *selfish environments*. Additionally, we prove that EquiCast incurs a low constant load on each user.