

# On the Economics of Anonymity

Alessandro Acquisti  
SIMS, UC Berkeley

Roger Dingledine  
The Free Haven Project

Paul Syverson  
Naval Research Lab

# Paper overview

- Motivation
- Social/economic difficulties deploying anonymous (traffic analysis resistant) communication systems
- An economic framework
- Types of agents
- Concluding remarks



# Anonymity is hard for economic/social reasons too

- Anonymity requires *inefficiencies* in computation, bandwidth, storage
- Unlike encryption, it's not enough for just one person to want anonymity — the infrastructure must

# Hide users with users

- Anonymity systems messages (the more noise, the more)
- Senders are consumers of anonymity, and providers of cover
- Users might be better off on crowded systems, even if

# More users is good

- High traffic → better performance (with same anonymity)
- Better performance → high traffic
- Attracts more users: faster *and* more anonymous

# But trust bottlenecks are dangerous

- Nodes with more traffic must be more trusted
- Adversary can give good service (see more traffic) (and knock down other good providers)
- Performance and efficiency metrics *cannot* distinguish bad guys from good guys

# Strong anonymity requires distributed trust

- An anonymity system can't be just for one entity (even a large corporation or government)
- You must carry traffic for others to protect yourself
- But those others don't want to trust their traffic to just one entity either











# It would seem we're screwed

- Inefficiency costs that propagates backwards the users chase users away
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# Multiplayer Strategic agents

- “Public good with c42U9t7ding” ithraagedyiths

Highly sensitive agents actually want some level of free-riding, to provide noise.

- But, just enough free-riding for benefits to dominate costs.
- Right distribution of valuations equilibria:  
agents with the high

# Alternative node incentive mechanisms

- Usage fee.
  - Market support for low overhead services (AnonymizeB).





