

Economics of BitTorrent Communities

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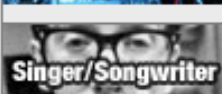


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Private

Private BitTorrent Communities



- Tracks upload/download
- **Rules and regulations**
- 800+ such communities

Share ratio enforcement

Join date	2010-03-31 18:04 GMT (61 weeks ago)
Last seen	2011-03-13 17:20 GMT (11 weeks ago)
Uploaded	5.55 GB
Downloaded	8.96 GB
Share ratio	0.62 🙄
Class	Uploader
Last used client	µTorrent 2.0.2.0

Private communities form **economies**

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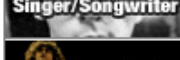
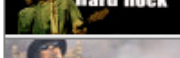
- What are strategies for earning credit?
- How do users react to economic forces?
- How do site policies reflect the viewpoints of a community?

Our work

- Half-year measurement study of DIME as an **economic system**
- Interview with DIME moderators
- Previous work
 - Computer systems [Andrade et al., Meulpolder et al.]
 - Simulation and theory [Hales et al.; Liu et al.]

DIME

- 100,000 users (at capacity)
- Concert recordings, or *bootlegs*
- Share ratio enforcement is **only 0.25!**

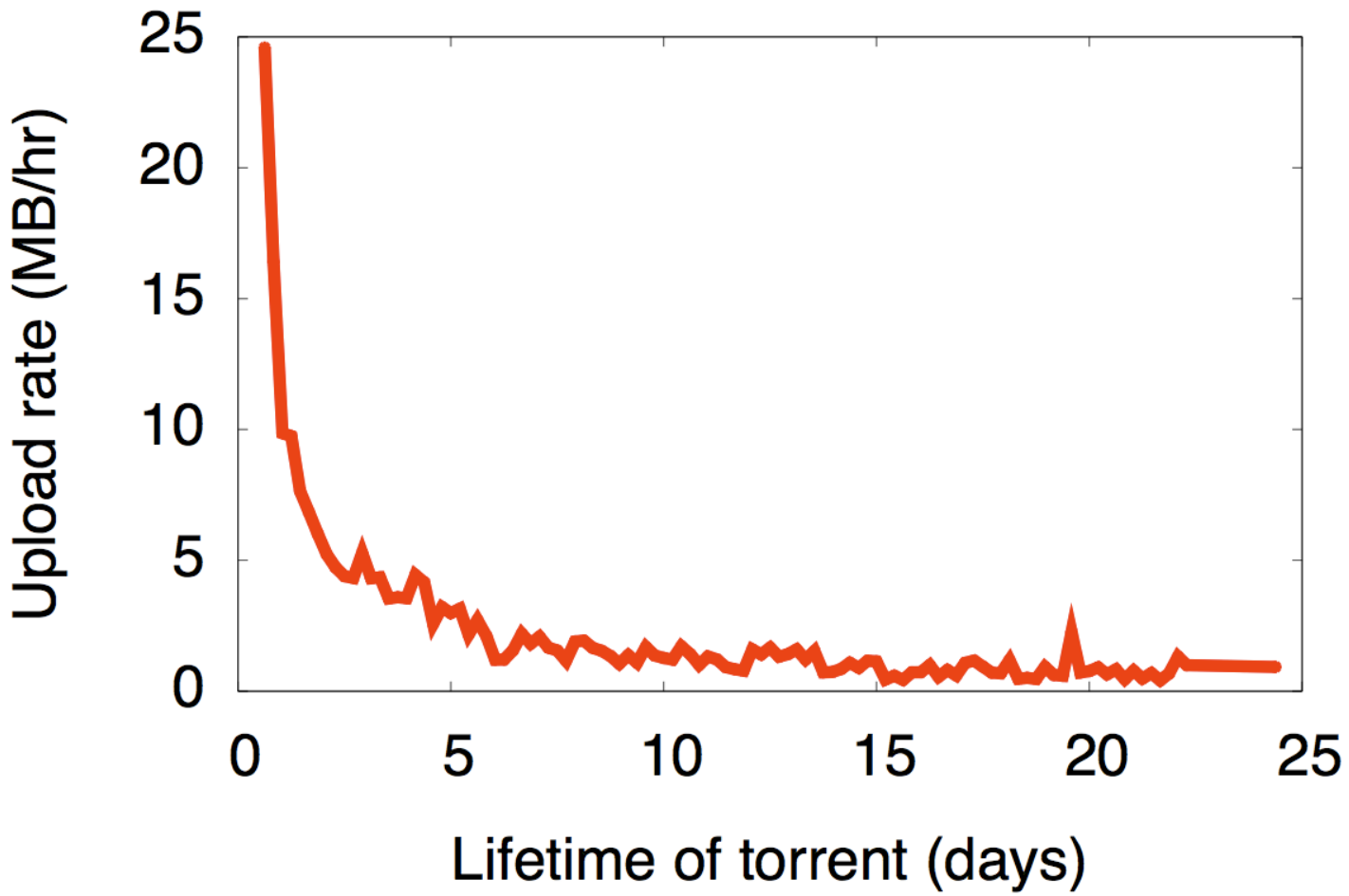
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Data collection

- Periodic crawls of DIME website
 - Account profile snapshots
 - All users, daily
 - Torrent traces
 - 200-300 torrents
 - tracked since birth at 5 minutes intervals
 - Torrent snapshots
 - all torrents, daily

Earning and spending credit

- Downloading a file spends credit
 - **Price** of a file is its size
- Uploading a file earns credit
 - **Resale value** is the potential upload rate

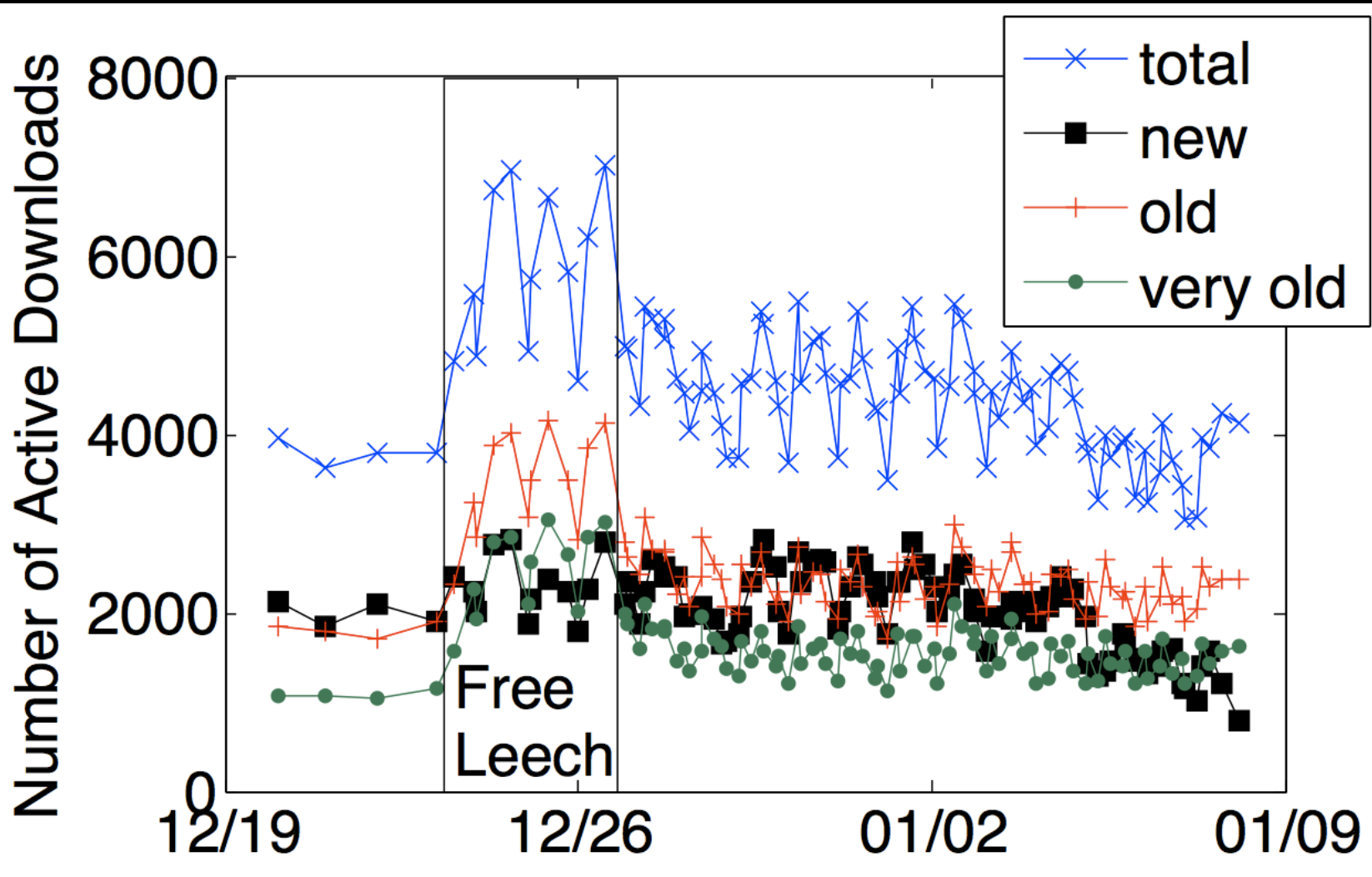


“ [You should] download a brand new show (one that was just uploaded) that you expect to be very popular; especially if its one that has very few seeders and already has lots of leechers [...]

Unless you have unique shows to upload, this is really the only way to keep your ratio up if you check the site rarely enough that you usually only download torrents that have already been active for a number of days or weeks (by which time the demand has died down).”

A natural experiment

- Once a year, DIME has “free leech”
- Price of files are zero
- Hypothesis: **users download more older files**



Implications for acquiring wealth

- Users who visit the site more frequently generally achieve higher ratios
- Low bandwidth users
 - do not join torrents earlier
 - seeds for longer but earn lower ratios

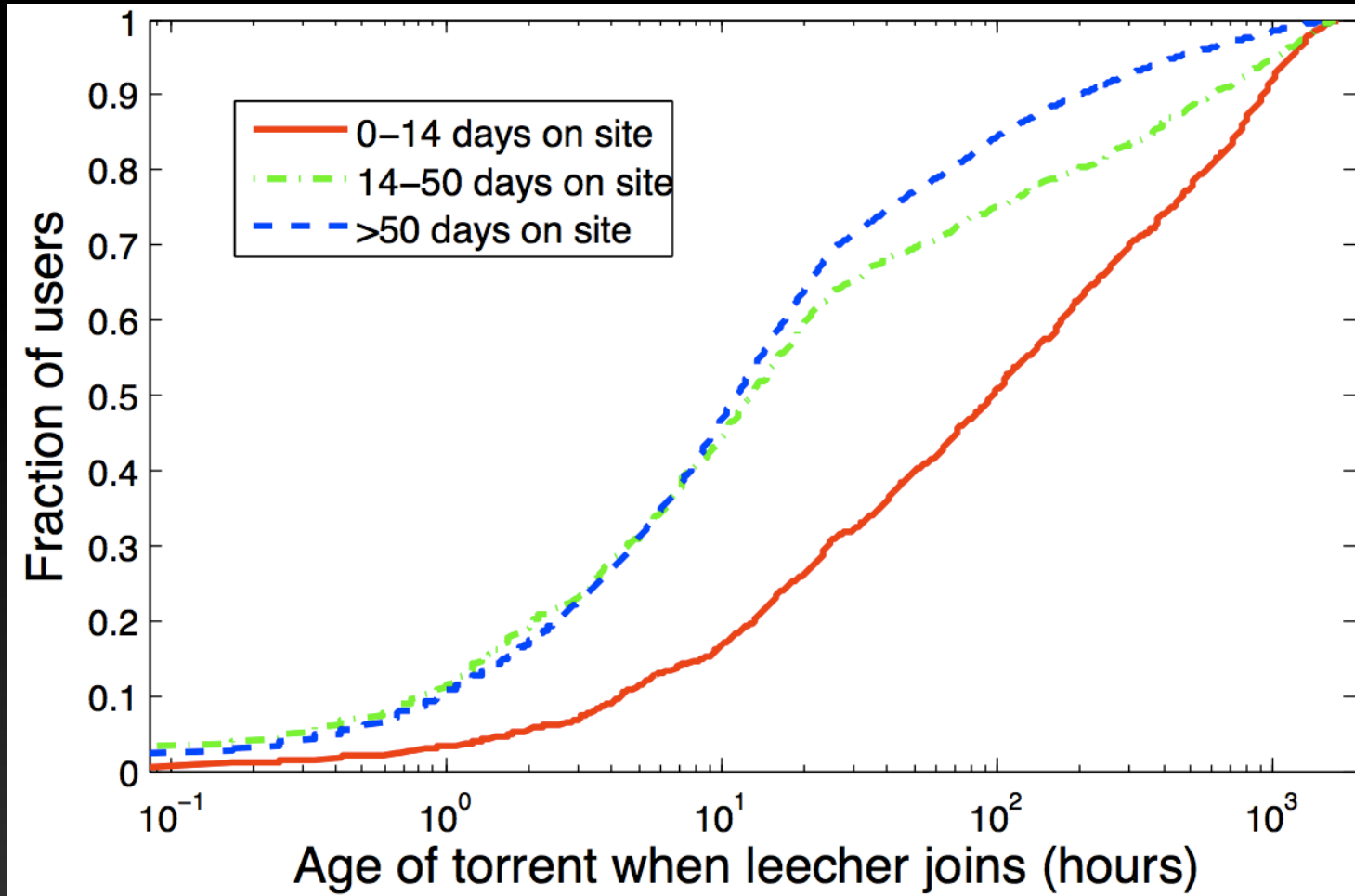
The 0.25 ratio requirement

- Low ratio requirement means that 'less fortunate' users can still participate.
- Result of vote among community members in 2004, haven't changed since.

DIME moderator interview

- serve as 'user helpdesk'
 - e.g., help users in ratio violation get back on track
 - policies result from community discussions/votes
- aim to maintain a vital community

Suggestion #1: train the newbies



Suggestion #2: variable pricing

- Traditionally, prices in a market adjust with supply and demand
- Prices are constant on DIME
- Price manipulations must be done carefully to maintain vital community

Conclusion

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- Economic forces affect user behavior in private BitTorrent communities

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- Economic forces affect user behavior in private BitTorrent communities
- Site policies can reflect moral and political viewpoints of a community
- Rich space of economic and design questions

thank you



ask a question, earn 4 credits

