

Public and private BitTorrent communities: A measurement study

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PDS group

BitTorrent measurements IPTPS 2005

Tribler

- Gossiping – BuddyCast
- Reputation – BarterCast

Swift – swarming transport protocol

The Peer-to-Peer Trace Archive

- <http://p2pta.ewi.tudelft.nl>

P2P-Next

QLectives

- Quality in Techno-Social Systems Workshop

BitTorrent communities

Thousands of content discovery sites
Communities

- User accounts
- Comments
- Ratings
- Forums

Private communities

- Membership required
- Difficult to measure

Motivation and goal

Are there differences between the two community designs, public and private?

We measure:

- Download speed
- Connectability
- Seeder/leecher ratio
- Seeding duration

Outline

Sharing enforcement policies

Measured communities

Experimental setup

Measurement results

Conclusions

Sharing enforcement policies

Make users seed

Community-level accounting

- Above tit-for-tat
- Penalties up to account removal

Torrent-level policy

- Prevents hit-and-run behavior

Measured communities

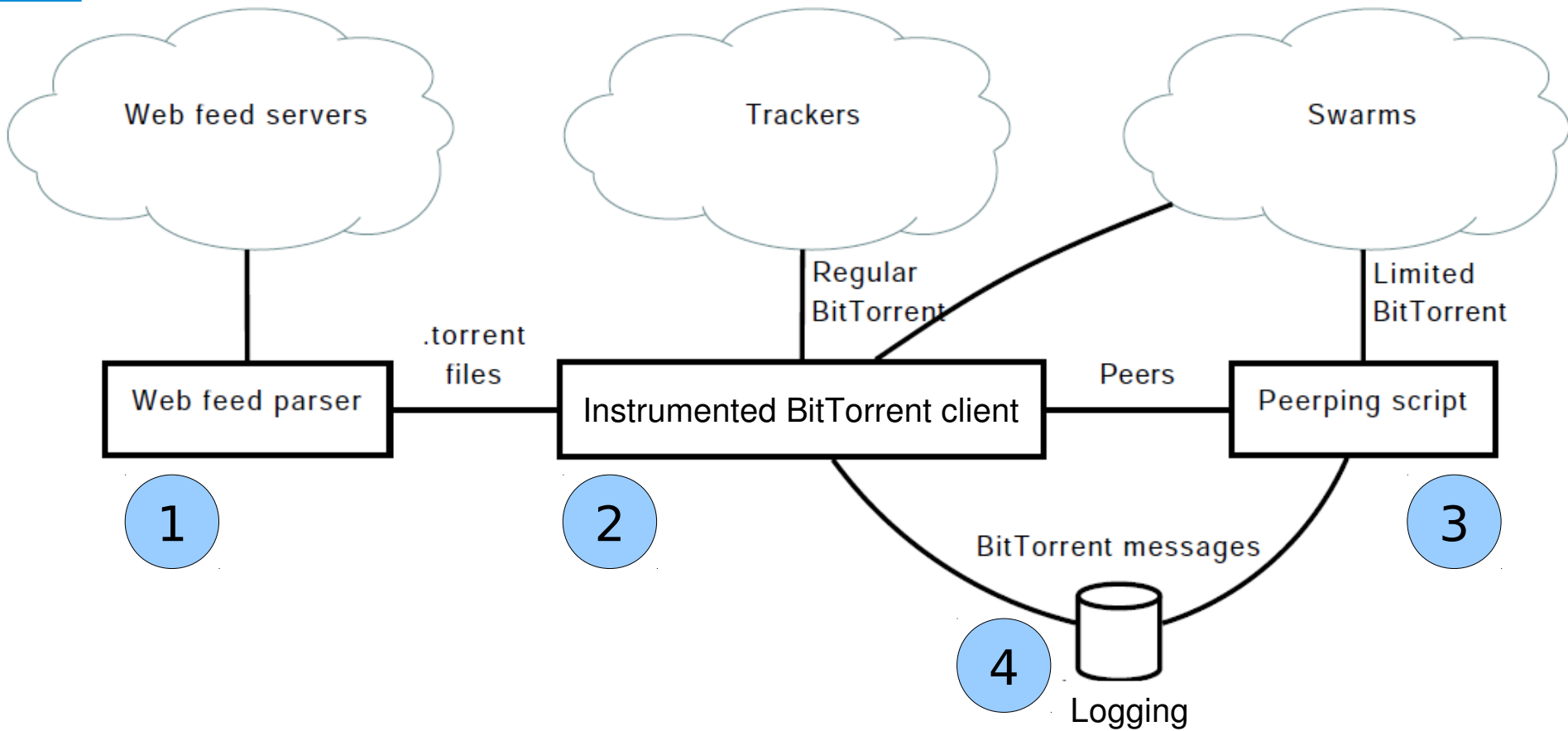
Public

- ThePirateBay
- EZTV

Private

- TVTorrents
 - Flexible accounting
- TorrentLeech
 - Torrent-level accounting
- PolishTracker
 - Strictest sharing enforcement policy

Experimental setup



Measurement details

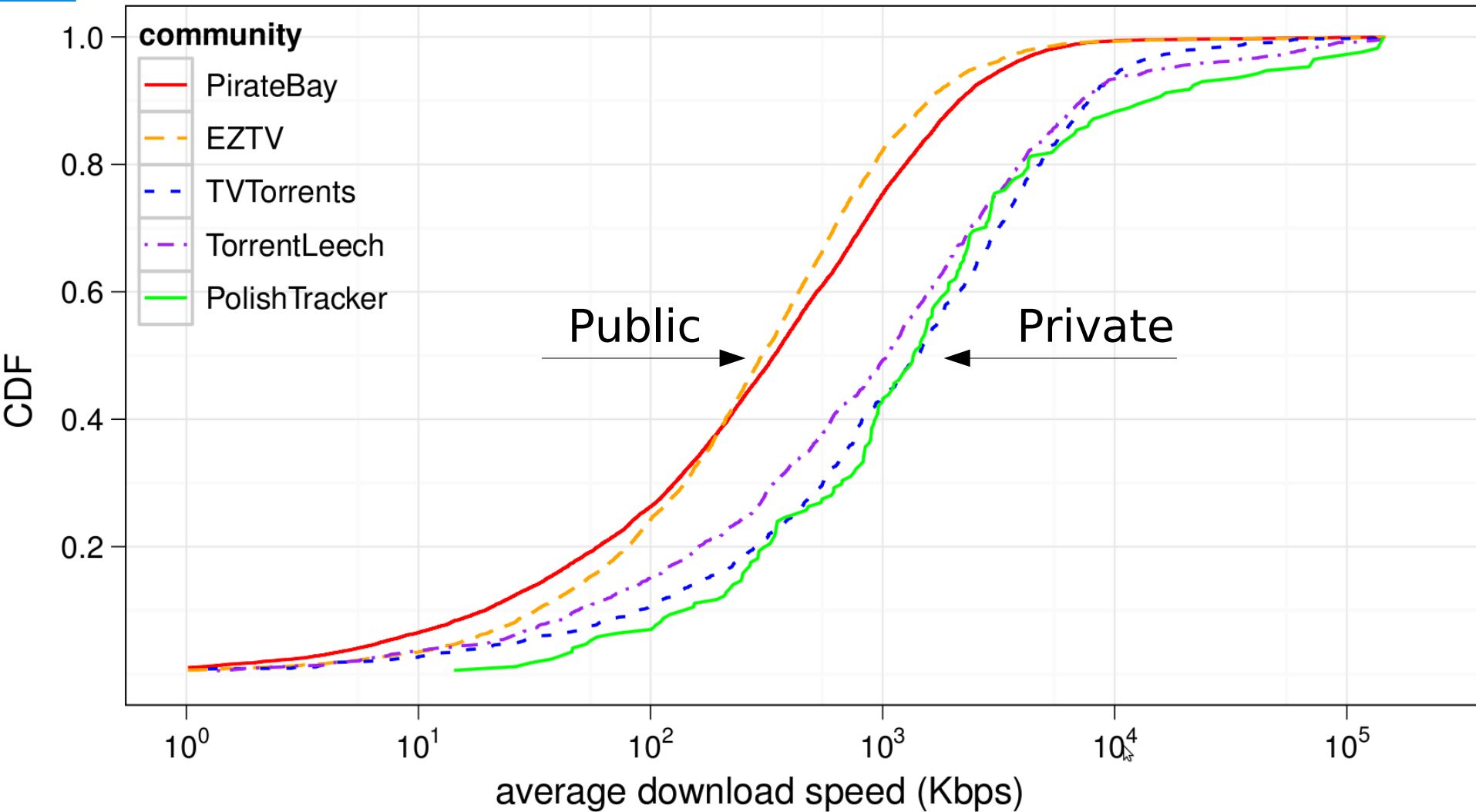
September to December 2009

Over 500 000 users

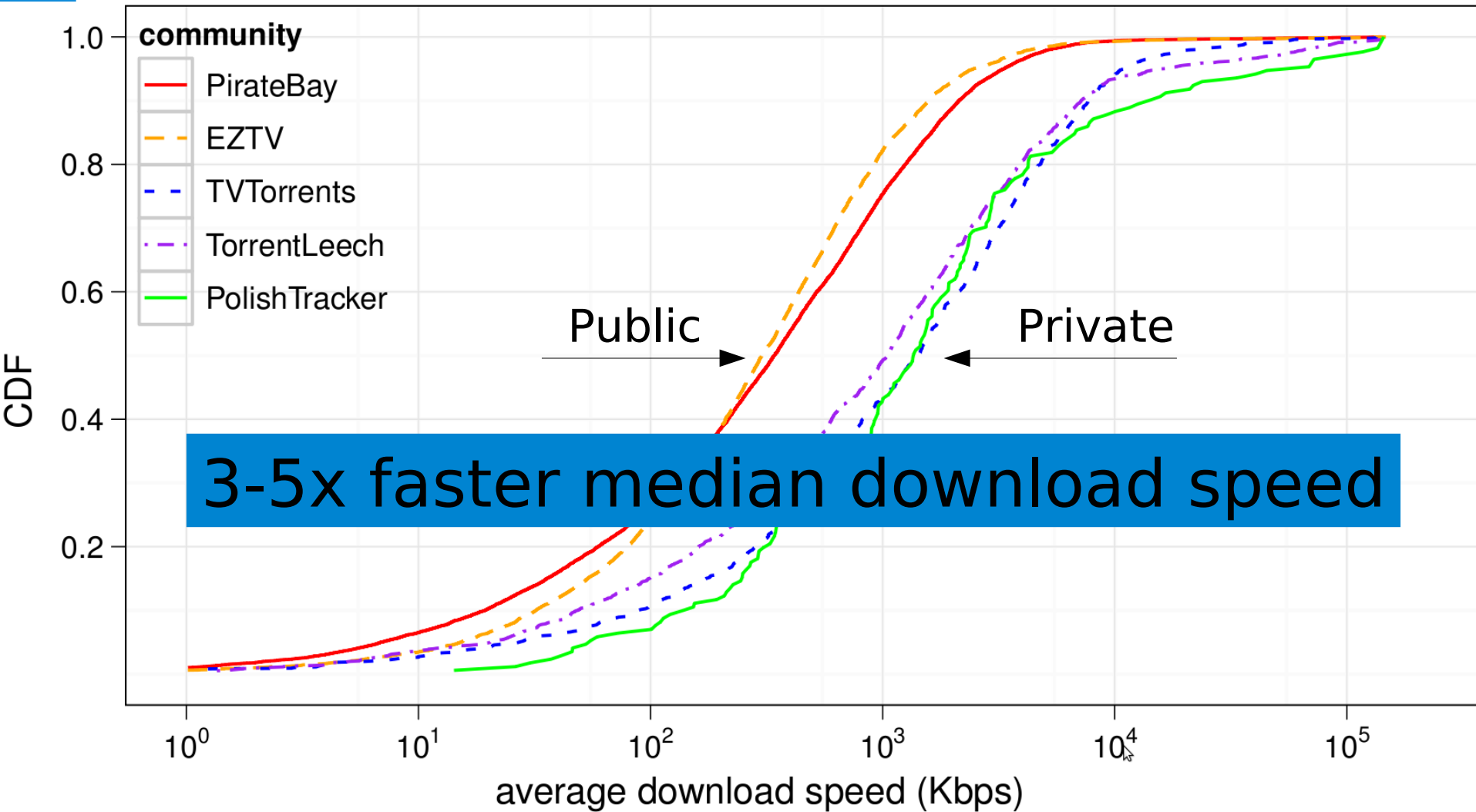
Over 400 torrents

Over 20 million bitfields

Download speed



Download speed



Download speed

Vs. previous results

Guo, IMC 2005

- 160 kbit/s mean

Pouwelse, IPTPS 2005

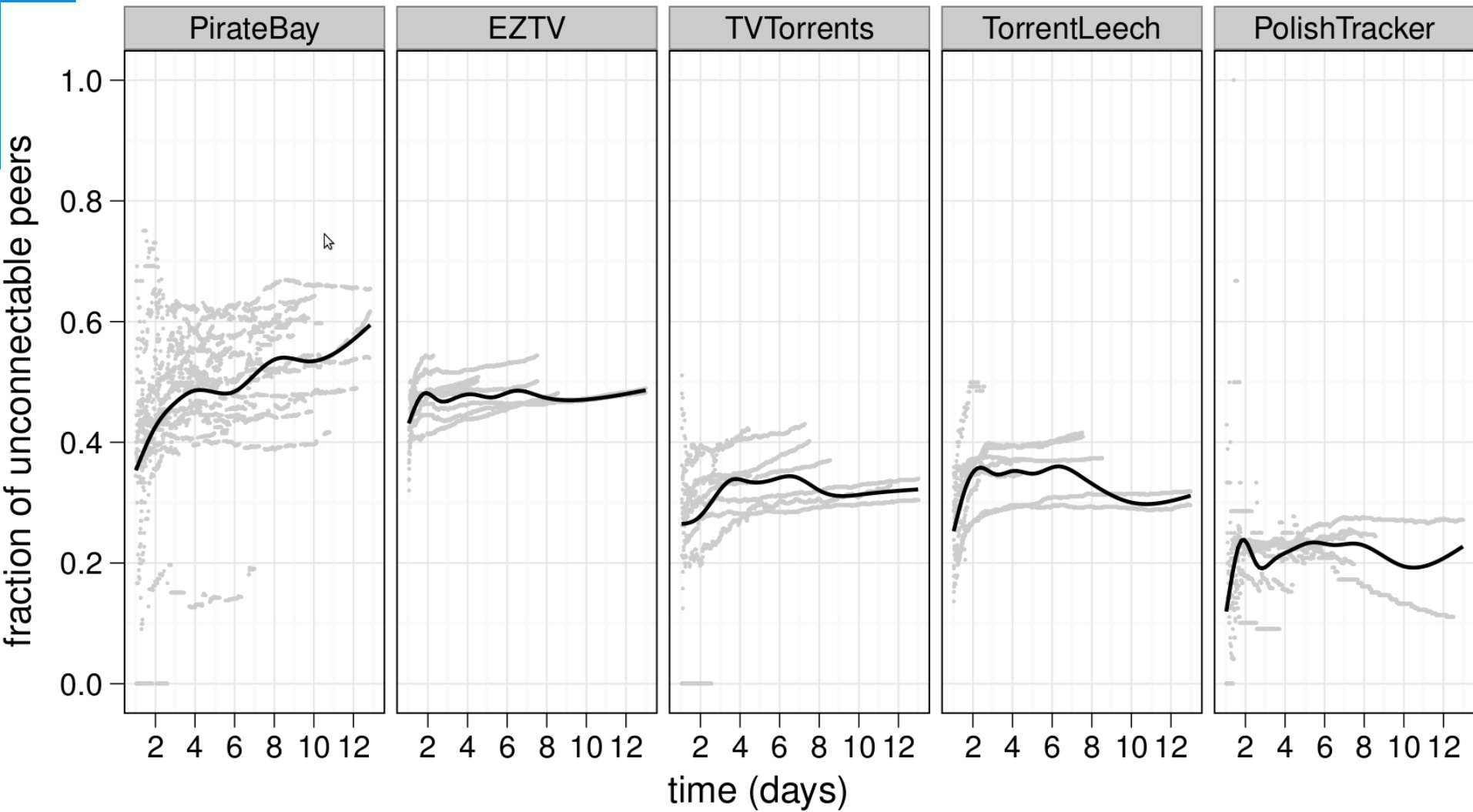
- 240 kbit/s mean

Iosup, CCGRID 2006

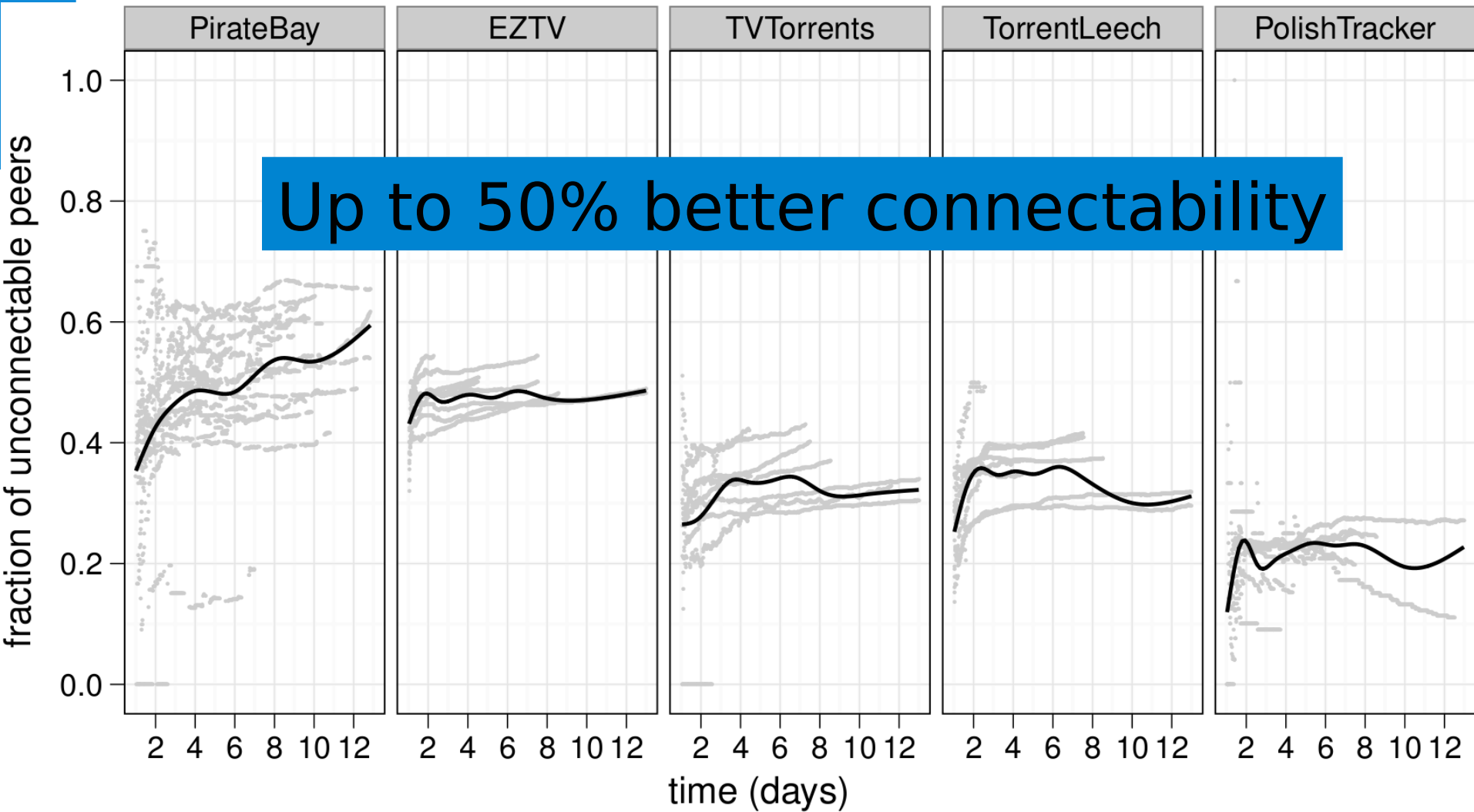
- 500 kbit/s mean

	Mean (kbit/s)
ThePirateBay	1037
EZTV	928
TVTorrents	3590
TorrentLeech	4937
PolishTracker	8625

Connectability



Connectability



Connectability

Vs. previous results

Pouwelse, IPTPS 2005

- 40% overall

Mol, P2P 2008

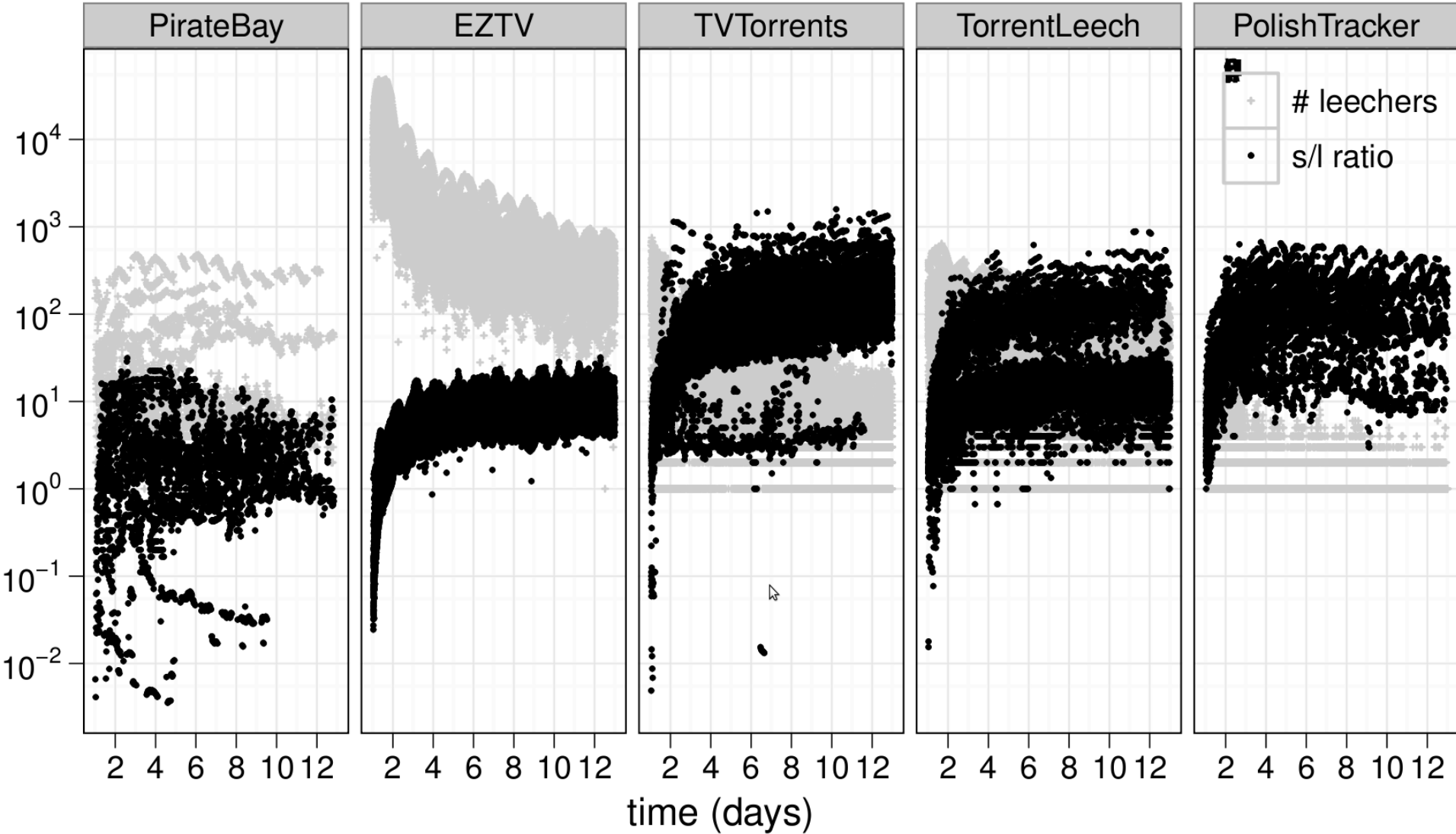
- 66% for ThePirateBay
- 45% for TVTorrents

Xie, ICPP 2007, CoolStreaming

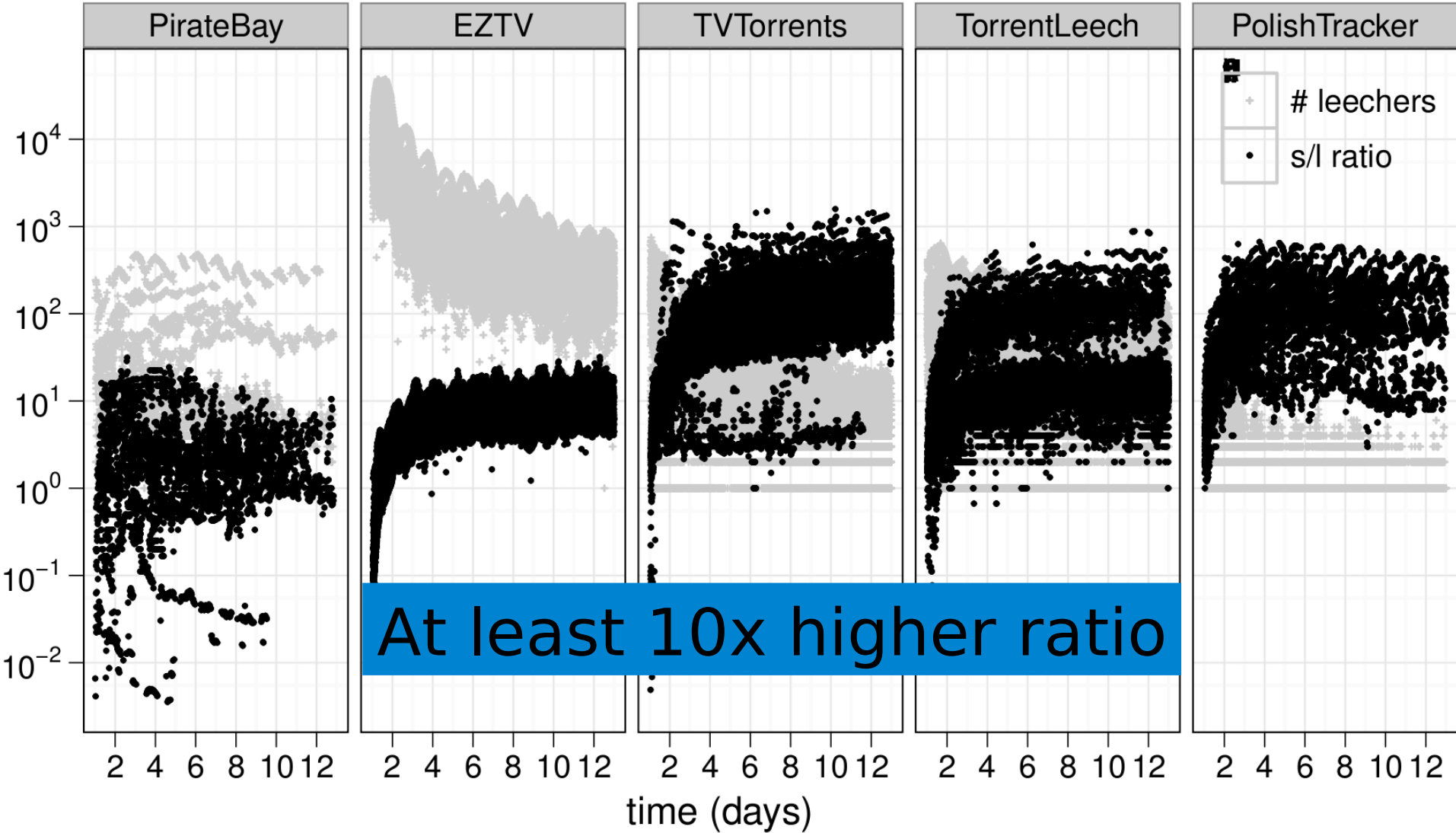
- 70%

	Mean (% all)
ThePirateBay	47.0
EZTV	48.3
TVTorrents	32.5
TorrentLeech	33.9
PolishTracker	20.6

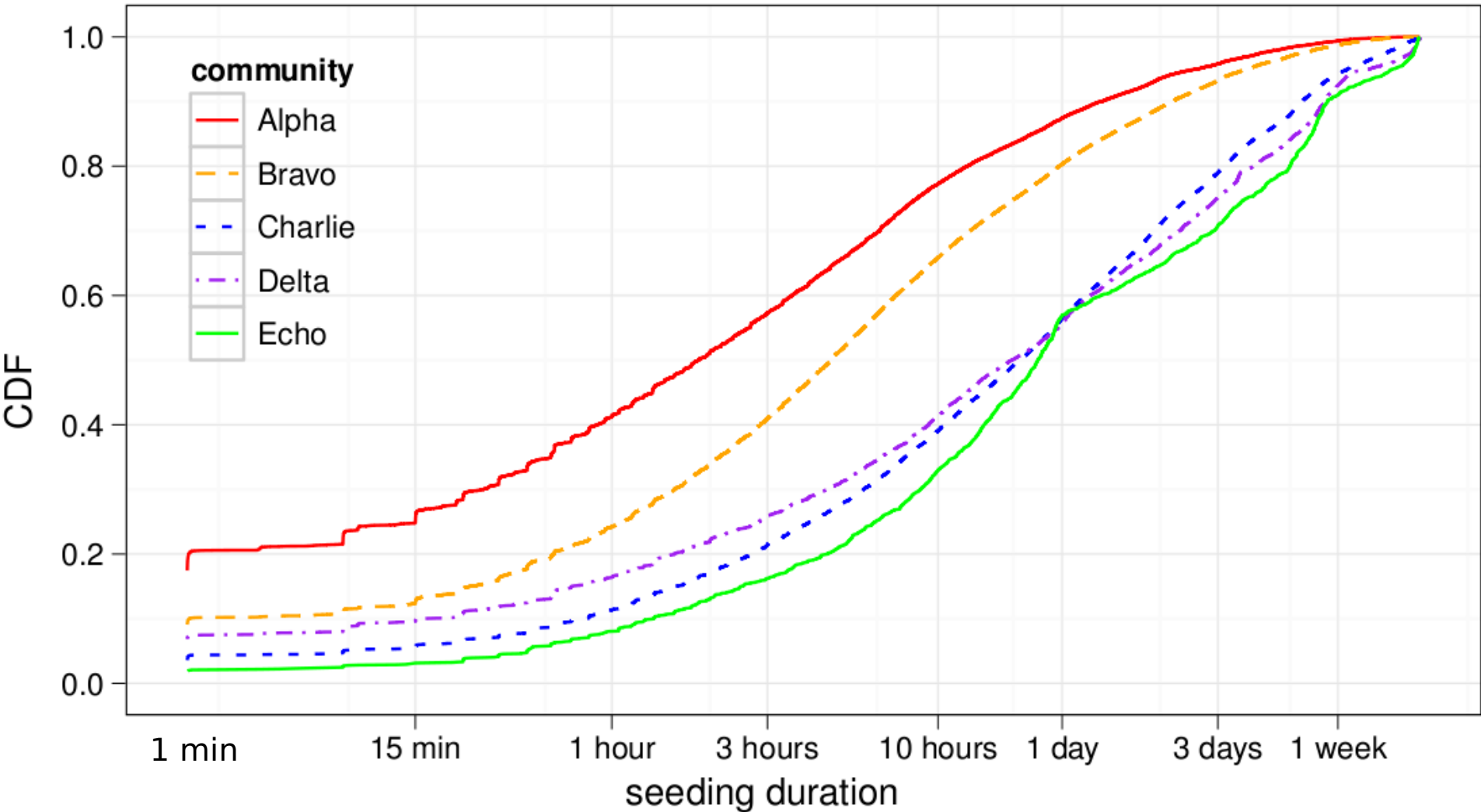
Seeder/leecher ratio



Seeder/leecher ratio



Seeding duration



Seeding duration

Vs. previous results

Pouwelse, IPTPS 2005

- 83% < 1 h

Guo, IMC 2005

- 8% > 1 day

Andrade, Computer Networks 2009

- 50% < 5 h

Conclusion

Private vs. public

- Speed is 3-5 times faster
- Connectability is 50% better
- Seeder/leecher ratio is 10x higher
- Seeding duration is much longer

Vs. previous work, public results are similar, private significantly better

Given the seeding measured, how important is tit-for-tat?