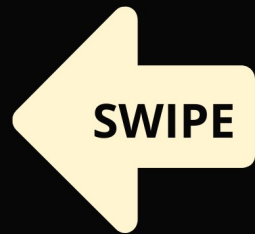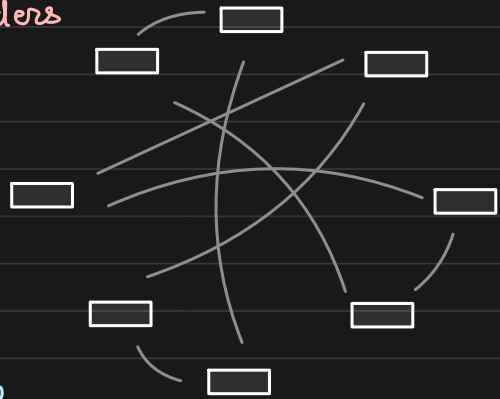# Stealing from BitTorrent

SWIPE

BY

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Exploiting and Stealing from a
BitTorrent Network

All p2p networks suffer from Free Riders
  ↳ downloading, but never uploading
1. affect other genuine users
2. threaten the existence of the system
Things would have been easy, if we
would had a central authority to keep
a check on the abuse.

Quick overview

  A BitTorrent network has
- seeders : nodes having complete file
- leechers : nodes currently downloading the file
leechers talk to seeders and other leechers for
the missing pieces to download faster.

Although, there are 'guidelines' written about peers
but the peer can behave however it want.

Pretend to be a new peer

You may choose not to announce any pieces
to the tracker and pretend to be new in
the network.
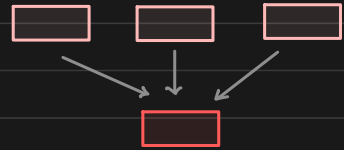
This way, tracker would never mention this node to any peers
hence, no one would request any piece from you.

When a peer starts, it announces itself to the tracker
and the tracker sends it a list of peers it can potentially talk to.

We can aggressively announce oursef
to the tracker and accumulating a large
number of peers addresses (more than
what is prescribed)

Tracker responds with 50 at a time, but we can request 200 (max)
and making repeated calls could help us build a large collection.

Be greedy with piece selection

Peers are supposed to follow rarest-first policy
so as to ensure min dependence on seeders
but what if we don't. We would grab whichever
piece we could and complete our download faster.

Open large number of connections

A peer will allow you to download only if you reciprocate and provide a good upload.
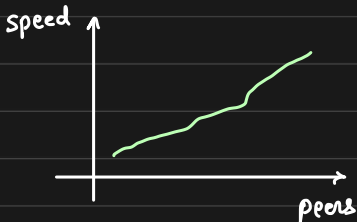
Reciprocation is the key to ensure, no free loading

But, once a while it does an optimistic unchoke in which it randomly allows one node to download without reciprocation
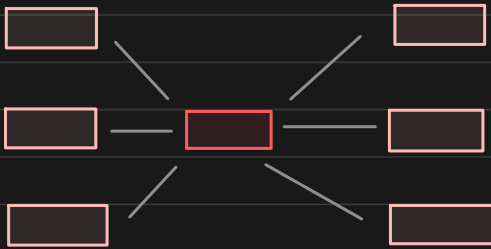
By connecting to a lot of peers, it increases its chances of getting optimistically unchoked and continue to download

Download speed α #peers we connect to

Given that other peers do not know the number of connections you opened.
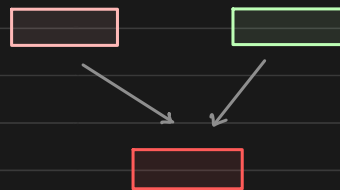
they would continue to usually share pieces.

* Opening multiple connections with the same peer does not help.   it may kick you out

* latest version of choke algorithm fixes this

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Pretend to upload

Peers will allow you to download,
when you give them a great upload

So, what if we pretend to upload?

1. send dummy data to tracker

    peers are encouraged to send upload/download stats
    to tracker. To exploit, we can send bloated numbers

    Since tracker wouldn't verify, it would think you are
    uploading much and hence give you a boost by sharing
    you as a peer during announcement.

2. upload dummy data

    we can also falsely announce our pieces but while
    uploading, we send dummy data.

    although MD5 verification could fail but we
    would still get a boost.

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