

cmsc 417 programming assignment #5: BitTorrent part 2

April 15, 2008

Goal: Seed a file through BitTorrent; Rate-limit.

1 Deadline

DUE: Friday, April 25. The late deadline will be Monday, April 29; you have only one late deadline to play with.

2 Partner!

You MAY work with one partner for this assignment. BOTH partner students must turn in a working implementation by the deadline. (this will simplify accounting.) Please include a text file “partners” in each turnin listing both names.

3 Overview

Alter part 1 for the following:

- Use the filename specified in the torrent; don't use “downloaded” anymore. UNLESS: the filename starts with a / or includes '.' (the literal, not the regex). I don't want you to accidentally overwrite an important file because some meanie gives you an evil torrent file. Such torrents should be discarded. (I won't test this; but if you corrupt a file that matters, it's not my fault.)
- Set your peer id to UM417xxww-yyy-zz, where xx and ww are your assigned account numbers, zz is a little randomness, and yyy is your short message to share. Set ww to 00 if without help.
- Check (using SHA1) any file already in place to ensure that the pieces of the file are legitimate; build the bitmask for what you already have (which may be physically realized in a cached message, an array of bits, or an array of pieces with flags, etc.) Pretty soon, you'll have to resume a partial download, so, set the bits for pieces you have based on reading the file.
- Tell the tracker you have the whole file (when you do; we'll start with the file in place for this assignment). I'm pretty sure this is “left=0”. (Possibly also numwant=0.) There's a right way to inform the tracker of incremental progress; feel free (optional feature) to use that instead of coding the special cases at the beginning of a download (last assignment) and at the end (this one).
- Support arbitrarily many connections (though you could start dropping them if there are 50). Use select! (or the poll function.)
- Listen on a port; accept connections on that port; receive, check, and reply to handshake messages.
- Provide non-empty bitmask messages of the correct length. Don't use the uTorrent (“have” message only) scheme.

