Torrent Client Project Features

Overview

This project entails the creation of a command-line torrent client utilizing Go. The client enables seamless file downloads and uploads via the BitTorrent protocol, harnessing Go's built-in concurrency and networking capabilities for optimal performance.

Key Components

Efficient Download/Upload

- The client adeptly handles extensive file transfers, leveraging Go's concurrency features for simultaneous downloads and uploads.

Parser Accuracy

- Torrent files are parsed with precision, extracting vital information such as tracker URL, file name, size, and pieces.

Robust Tracker Communication

- Establishes reliable communication with the tracker, ensuring up-to-date information on available peers.

Piece-Level Management

- Effective piece management guarantees a systematic download and upload process, ensuring file completeness.

Concurrency for Scalability

- Utilizes Go's concurrency features to seamlessly handle multiple downloads and uploads concurrently.

Error Resilience

- Robust error handling mechanisms ensure the client gracefully manages unexpected scenarios, maintaining stability.

Fault Tolerance and Recovery

- The client exhibits resilience, recovering from errors and persisting bitfield information to ensure continuity in processes.

Limitations

The torrent client has the following limitations:

1. **File Type Support:**

   - Only supports `.torrent` files.
   - Does not support magnet links.

2. **Tracker Protocol:**

   - Only supports HTTP trackers.
   - Does not support other tracker protocols.

3. **Torrent Structure:**
   - Does not support multi-file torrents.
   - Currently designed for single-file torrents.

These limitations outline the current scope of the torrent client and represent areas where future improvements or additional features could be considered.

In summary, the project delivers a functional and efficient torrent client, demonstrating prowess in efficient file transfers, accurate parsing, robust communication, and resilience in the face of errors.

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