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Internet Technology 352
BitTorrent Part 2

Overview

This simple bit torrent client loads a .torrent file, uses Bencoder2.java to decode the data, interfaces with a tracker, and then will allow multiple peers to download a mp3 file from other peers simultaneously. When
the file is finished downloading, the peers are notified, and it is saved to hard disk.

Classes

RUBTClient

This class takes into account incorrect argument handling and also involves a start method. It takes in the file torrent and file destination as parameters. All information regarding local connection ports are included. After valid arguments are called, start method creates a TorrentManager class to decode the torrent file.

TorrentManager

This class initiates a tracker thread which creates peer threads depending on how many peers were listed by the tracker. This takes in the torrent file and converts it into a byte array using Torrentinfo.java to decode the information. It also generates a different PeerID everytime.

TorrentInfo

This class was provided. It stores in methods the information reads out from a bencoded single torrent metainfo file.

TrackerThread

Given the IP address and port specified from the torrent file object, this class opens the TCP socket connection and sends HTTP GET request to the tracker. This class gets peers from tracker and this is also where the list of peers is defined with the set IP address at 128.6.5.130. It also converts the info_hash to an escaped hex string and creates a peer for every peer in the peer list. Also, it sends updates
to the tracker based on the scrape interval.

Peer

This class enables the peer connection and receives information from the peers.
It gets the IP address and the port for the peer to connect to. In addition,
it store the bitset of available pieces for each peer.

PeerThread

This class constructs a peer thread given certain parameters. It checks to see if the file is empty or not and then sends request to peer for pieces. It sends the pieces to DownloadManager. It tells the peers information
about what pieces we have. It also allows other peers to send requests for downloading pieces and keeps the connection open.

DownloadManager

This class verifies the file's SHA-1 hash against the hash stored in the metadata file. This checks if all the pieces have been downloaded. It then creates a RandomAccessDisk which will be used to hold pieces of the torrent in memory. It randomly distributes pieces to each peer thread for downloading.

Bencoder2 and BencodingException

These classes were provided and parses a bencoded byte array.