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Peer-to-Peer(P2P)network, BitTorrentClient

Master Program: Informational Systems

Master's thesis is done to obtain Master's degree of
Science in Information Systems

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Annotation

BitTorrent is a peer-to-peer (P2P) data transfer protocol. It exists since 2001 when Bram Cohen created the first version of the protocol. BitTorrent is a method of widely distributing large amounts of data by spreading the inherent load on hardware, Internet hosting and bandwidth when, in the traditional model, it is the sole distributor. The latter no longer has to serve each recipient: the customers themselves serve the data already received to new recipients. The cost and burden of data distribution are therefore considerably reduced; At the same time, the protocol provides redundancy against hardware problems and reduces dependence on the original distributor.

The big breakthrough was when sites like The Pirate Bay made it popular to use to download pirated material. Streaming sites, such as Netflix, may have resulted in a decrease in people using BitTorrent to download movies. But BitTorrent is still used in a number of different legal solutions where the distribution of large files is important. According to statistics, BitTorrent accounts for about 35% of Internet traffic. Its usage is shown below:

- Facebook uses it to distribute updates to their huge data centers
- Amazon S3 implements it for downloading static files
- Traditional downloads are still used for larger files such as Linux distributions
- Some Gaming companies use it, like Blizzard, Eve, etc.

It's widely used in Education, Government sector, Entertainment - Including pirating etc.

In this master's work author created TSO – multi-platform client software compatible with the BitTorrent protocol, using asynchronous Python module (**asyncio**). This program has graphical interface, but it also can used as command line program.