

End-to-end Bittorrent Publication

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Abstract

End-to-end publication through Bittorrent involves creating a .torrent metadata file, communicating with peers through a central “tracker,” and a download client that can use the .torrent file to contact the tracker and other peers to download the file. This project aims to simplify this process by providing a complete package that provides all aspects of this process.

What is Bittorrent?

Bittorrent is a peer-to-peer file sharing protocol that is useful for distributing files to a large number of peers simultaneously.

In the traditional model (Fig A), a single server has to upload the file to all the peers. This makes the upload bandwidth of the server a major bottleneck, especially when a large number of peers attempt to download the file at the same time.

Bittorrent eliminates a centralized download server and uses the peer's upload bandwidth to distribute the file. This means that total upload bandwidth scales with the number of peers, meaning that the file is always available for download at high speeds.

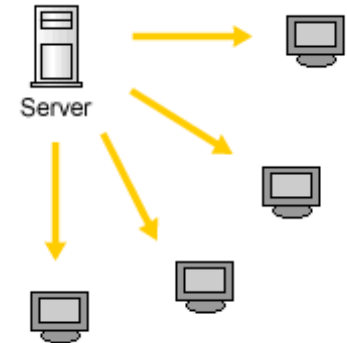


Fig A. Traditional Model

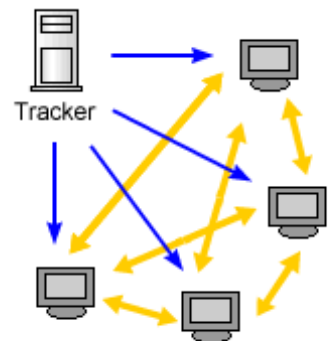


Fig B. Bittorrent Model

Procedure

The .torrent metadata file stores data in “bencoded” format that allows easy translation through the use of the Python scripting language. This is the first step in Bittorrent publication.

Tracker software does not have performance constraints and need to be able to parse .torrent files, so it will be written in Python as well.

The download client does have performance requirements, and will be written with that in mind in either C++ or Python.

Expected Results

Creation of bencoded files is completed, and parsing will soon follow. This will allow the project to transition into the next phase: writing tracker software.

Writing a download client using existing libtorrent Bittorrent development libraries was unsuccessful, but will be re-examined later when the project nears fruition. There exists an abundance of download clients, making this a non-issue.