# Open2Edit:

## Decentralized Wiki-like Media Sharing in Virtual Communities

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#### **Motivation and Challenges**

Virtual communities allow users with mutual interests to interact through a shared media, usually a website. Decentralizing them allows users to remain in control of their data.

*But,* ensuring an optimal user experience for all users is difficult due to the lack of a centralized authority.

- New identities are free
- Vandalism is simple
- Current solutions limit control of users

#### **Proposed Solution**

Transpose ideas deployed by Wikipedia to combat vandals and create a fully decentralized virtual community platform without the drawbacks of previous solutions.

- Wikipedia is centralized, but their approach to combat vandals is not. Everyone can edit, no user account required.
- By exposing all activity and motivating users to contribute they manage to achieve a quality equal to Encyclopaedia Britannica.<sup>[1]</sup>
- [1] J. Giles. Internet encyclopaedias go head to head. Nature,438(7070):900-1, Dec. 2005.

#### System Architecture

#### **Features**

 Everyone can add, download, comment on, improve, revert and rate items

#### Completely transparent

- All activity is linked to a user
- Personalized activity lists allow for easy monitoring

#### Implementation

- Channels are virtual communities
- Build into Tribler
- Build using a distributed permission system (Dispersy)
- Every channel has a separate overlay
- One additional overlay used for discovering channels
- All messages are signed, verified accountability
- Modifications and comments have pointers to their latest received messages, allowing for ordering

#### legaltorrents's channel ( Previewing 25 torrents ) Q Search within results Go back Contents Name Date Added ▼ Size Popularity ▼ Charbel The Movie - Charbel The Movie French Subtitles 08-11-2010 4016 MB Liking what you see? Click download or play to enjoy this torrent Charbel\_ The Movie - Charbel\_ The Movie \_French Subtitles\_ Type Uploaded Filesize Download or Play 2010-11-05 5 seeders, 0 leechers ▶ Vintage Newscast - The Pay Off - 1935 01-10-2010 452 MB You are looking at a preview of this Channel If you want to see more of it, press the 'Mark as Favorite' button. Tribler will then more aggressively download updates making sure you always have access to the newest content. Mark as Spam or Mark as Favorite

Virtual community as implemented, features highlighte

### Results & Analysis

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#### **Experiments**

- Performed on DAS-4 supercomputer
- Deployed 250 peers on 10 nodes
- Used trace from actual community
- 1 peer creating all messages, other peers synchronizing
- 10 peers join community after 1300s, hence vertical lines

#### Results

- Peers can easily stay in sync
- Very efficient due to use of Bloom-filters
- On average a peer consumed 1 KB/s, inserting peer consumed 2 KB/s
- Load is divided between peers
- Tribler 5.5 will be released with Open2Edit enabled, thousands of users will allow us to further evaluate it's social features.



