

P2P Collaborative Editing with CRDTs

Alex Dalgleish

When you use Google Docs, you give them license to:

“host, store, reproduce, modify, create derivative works (such as those resulting from translations, adaptations or other changes we make so that your content works better with our Services), communicate, publish, publicly perform, publicly display and distribute such content.” (Google ToS)

Privacy? -> P2P

Conflict-free Replicated Data Types (CRDTs)

Provide SEC (no conflict resolution)

State-based - distribute state

Op-based - distribute operations (concurrent operations commute)

Ordered list - `add_right(v', v)` and `delete(v)`

Work completed

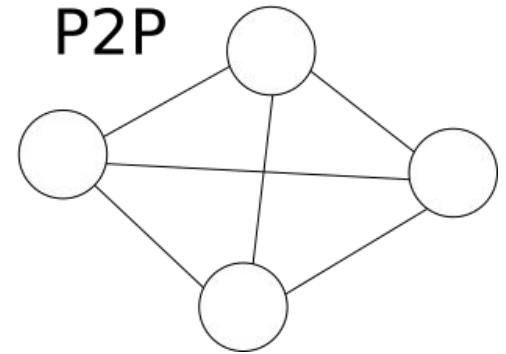
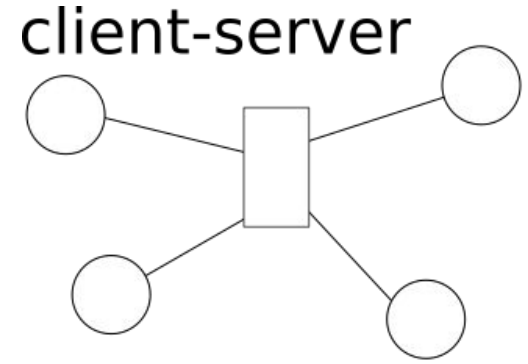
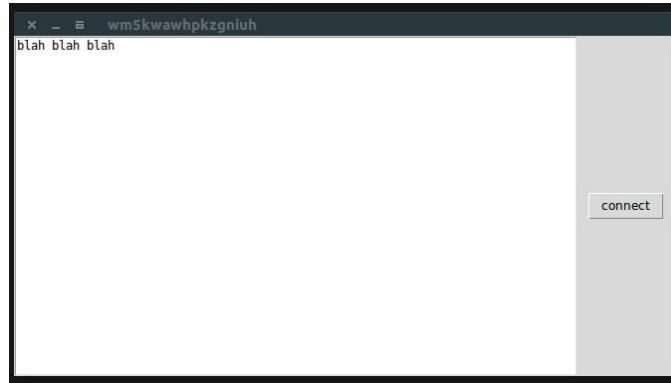
Generic collaborative editing library

Client-server or P2P

Basic text editing UI

Encryption

Tor Onion services



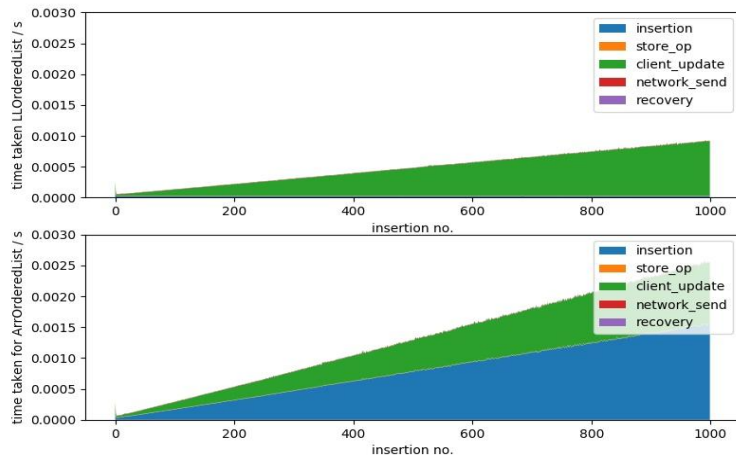
Still to do

Measurements:

Various delays

vs no. nodes, no. operations

Timing of AddRightLocal in two implementations



Tor relays

