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Decentral Methods for Simultaneous Editing of Shared Data Structures

The full text is currently only available in the Deutsch version. A translation will follow.

Archived. This content is no longer updated. It remains available for reference.

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Systems such as Google Docs or web-based versions of Microsoft Office have been instrumental in driving collaborative document editing. Distributed version control systems such as Git, but also decentralised cryptocurrencies such as Bitcoin, show (albeit in different ways) that simultaneously working on a shared data structure is also possible without a central instance. Yet, automatic conflict resolution is only possible under certain conditions or in a non-destructive manner in systems like these.

Especially in a decentralised setting, conflict-free data replication, which also accounts for all edge cases relevant in practice, is still the subject of current research, although significant progress has been made in recent years. This project classifies procedures from these topics and analyses them with regard to secure, distributed processing on common, shared data structures.