From Me to You: Peer-to-Peer Collaboration With Linked Data

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Abstract

In recent years, Digital Humanities' collaborative nature resulted in digitally-native, interdisciplinary research workflows among open data repositories. Tasks shared across disciplines, such as creating corpora, annotating manuscripts, and natural language processing, have arguably never been more accessible. Backed by open standards and protocols, platforms for managing these workflows soon emerged and are engaged in an interoperable data exchange with their scholarly users.

However, those platforms raise data ownership and privacy concerns, practically being data silos storing data on one's behalf. Eliminating the middlemen between researchers, local-first software connected by peer-to-peer (P2P) networks could embrace digital ownership, while further supporting discovery, interoperability, transparency, and privacy via cryptographic methods and open communication protocols.

In a novel approach, we aim to develop a P2P system for collaborating on distributed annotation data, namely W3C Web Annotation, an open Linked Data standard. We experiment with different network and software architectures as alternatives for established platforms and we integrate this P2P system into existing collaboration platforms in a number of case studies.

Exploring aspects of P2P, we expect several benefits in the domain of Digital Humanities research: Offline-first data could boost overall productivity, while signed versioning of changes could result in increased quality of data repositories. Finally, network swarming could facilitate collaboration by enabling platformless discovery of related work. To validate these presumptions, and furthermore concerning usability and institutional requirements, we conduct user studies and evaluate researchers' feedback on distributed workflows.

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