

Sonar

Decentralizing archives through peer to peer tools

Franz Heinzmann

<https://arso.xyz>

archipel@riseup.net

arso project

- build tools for decentralized archiving and preservation
- currently building **Sonar**: a peer to peer database and search engine
- exploring "decentralized autonomous archives" (P. van Garderen)

<https://arso.xyz>


Decentralizing archiving

- archiving has a history of centralization
- inclusiveness needs equal access
- public open spaces vs power of knowledge

Decentralizing technology

- centralized stacks need centralized structure
- complex technology is a gatekeeper
- open data movement: progress through open source & open apis
- traditional software stack makes real decentralization hard

Traditional archiving stack

 width:1920px

Traditional archiving stack

- hard to setup and maintain: requires continous investement & knowledge
- interoperability as add-on
- even with open APIs: no equal access


Peer to peer archiving stack

- peer to peer storage: no difference between source and copy
- local first software: dumb servers, thick clients
- open source plus open *source* data: extend, hack, branch, fork

Sonar

- Building on top of Hypercore protocol hypercore-protocol.org
- Part of the Dat ecosystem dat.foundation
- Research project: Alpha stage, reaching beta soonish

Sonar peer to peer stack

 width:1980px

Data storage & replication

- Cryptographically secure append-only logs (*Hypercore*)
- Distributed hash tables for peer discovery: no servers needed
- Simple replication protocol with support for sparse replication
- Filesystem abstraction (*Hyperdrive*)

Kappa architecture

- simple base storage, but p2p first
- rich "materialized views": all messages "flow" into a secondary database
- full-text search, graph db, etc
- local-first architecture: work offline, sync on demand

Ownership models

- fork everything: extend other collection with own data, frontends, mappings
- access per collection by keypairs
- secure preservation through easy full replication
- challenges: splitting access, blind replication

Challenges

- collective schema management and RDF vs JSON
- open spaces vs copyright
- key distribution

Way forward

- Sonar as a framework to enable exploration of peer to peer archiving
- looking into practical project & partners
- looking into exploring resilient free software financing models

Sonar

web: <https://arso.xyz>

mail: archipel@riseup.net

We're looking for contributors or interested advisors!

archiving for everyone: decentralize the preservation of history