

Niko Bonniere

Build local-first, P2P and E2EE social apps, with NextGraph!

Demo of Social Queries.





European Commission
DG CNECT



ASSURE



ZERO
COMMONS



NextGraph
.org



nlnet
FOUNDATION

SYNC PROTOCOL

FRAMEWORK / SDK

SYNC PROTOCOL

ECOSYSTEM of APPS

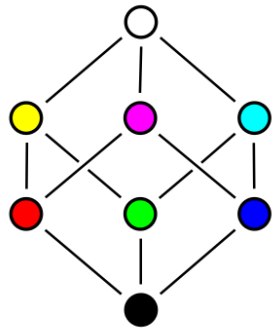
FRAMEWORK / SDK

SYNC PROTOCOL

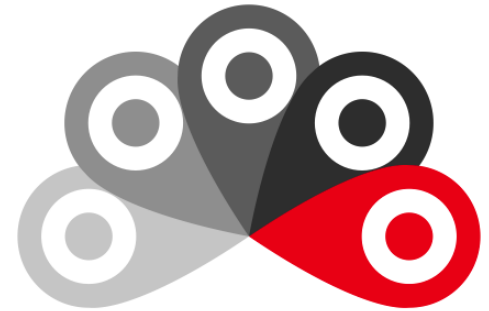
Why another protocol ?



Conflict-free Replicated Data Types



CRDT.tech



lofi.so

End-to-End Encryption

⇒ Data Ownership

⇒ Privacy

NextGraph transports any kind of CRDT

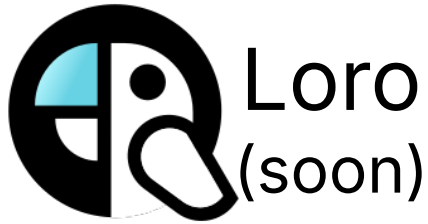




Automerge



Loro
(soon)



CRDT

RDF CRDT implements "Synchronizing Semantic Stores with Commutative Replicated Data Types" 2012

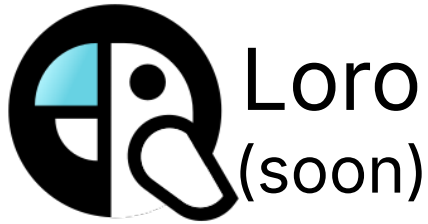
Luis Daniel Ibáñez, Hala Skaf-Molli, Pascal Molli,
Olivier Corby

<https://inria.hal.science/hal-00686484v1>

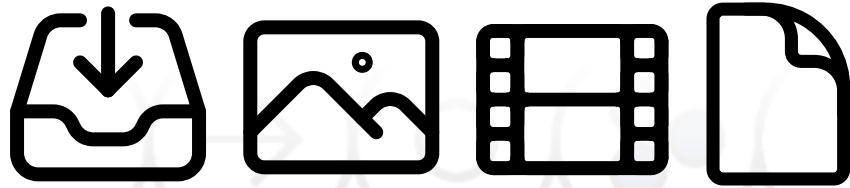


JSON
RichText
MarkDown
PlainText





JSON
RichText
MarkDown
PlainText

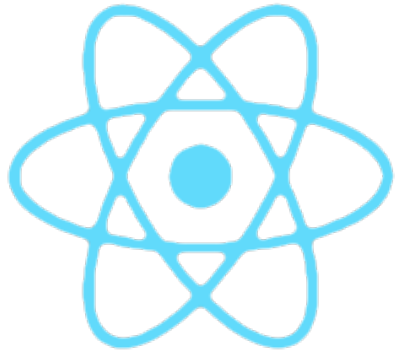


Immutable Binary Files
w/ Content Addressing

+Blocks ala Notion/NoteTaking/Wiki

NextGraph is a Framework / SDK for App Developers

And our main goal is to offer an
integrated solution
of malleable software
to end-users



React



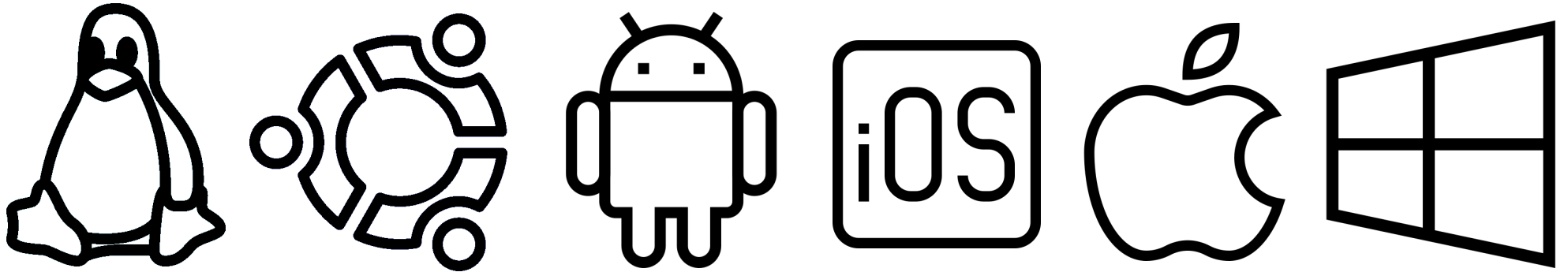
SVELTE



Vue.js
(soon)

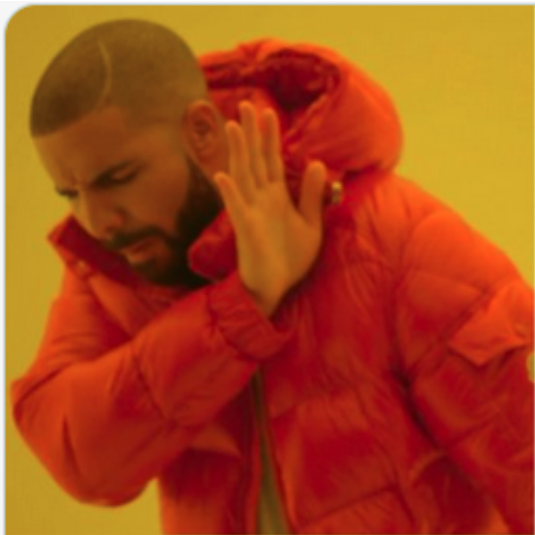
Reactive stores

NextGraph App



- Manage Documents
- Install and launch apps

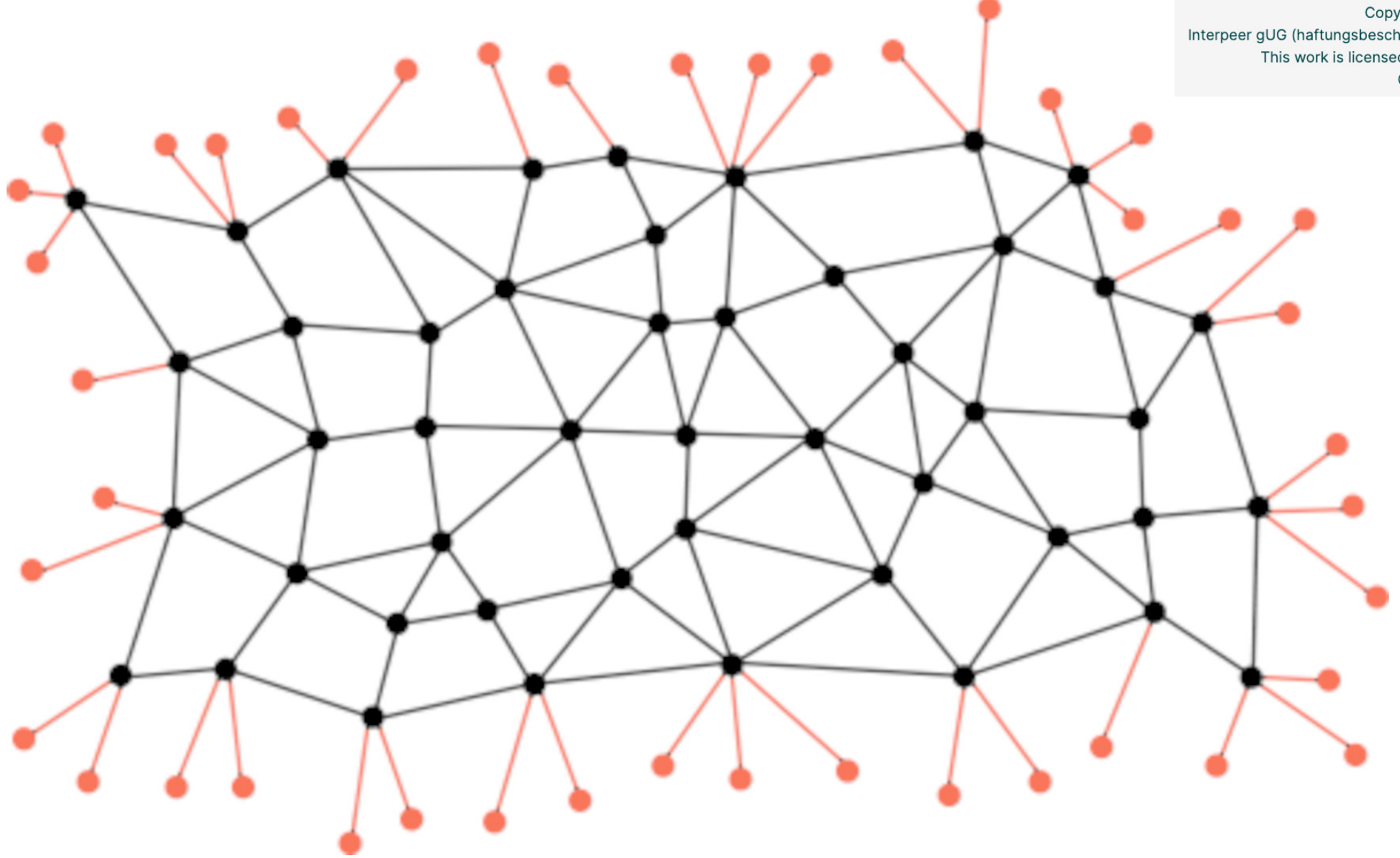
- Encryption at rest
- Wallet: grant permissions
- Search, Share with others
- Stores: Public, Protected, Private, Group



**Data
fetching**



**Data
syncing**





DIDs

Decentralized
Identifiers

Sovereign Identities

Data portability & durability

—

Cryptographic Capabilities

Read, Subscribe or Write

Compatible with HTTP
Run services
Headless CMS
WebApp

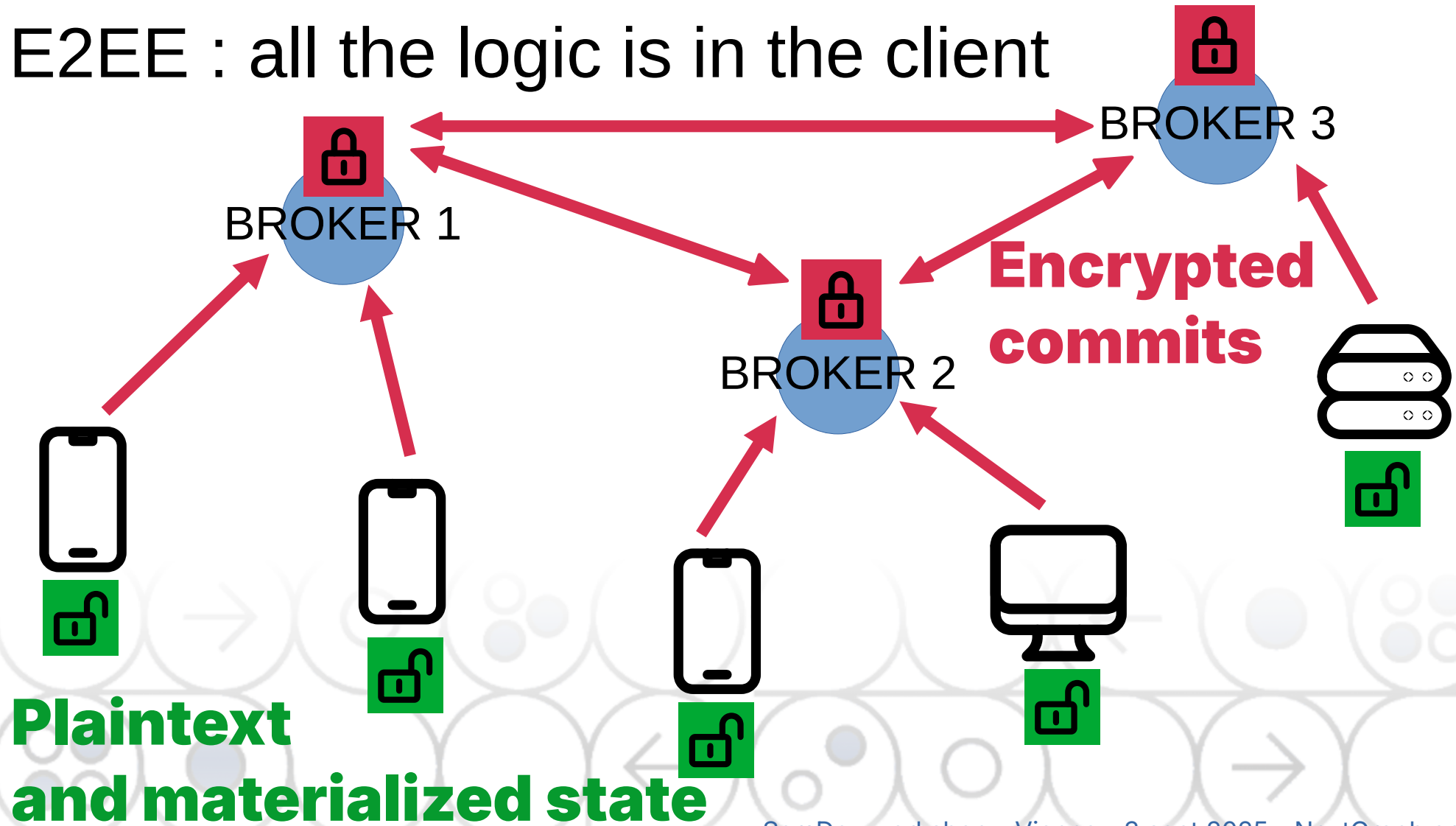
Local SPARQL

revision history, revert

Signatures \Rightarrow authenticity

integrity, audit, time travel

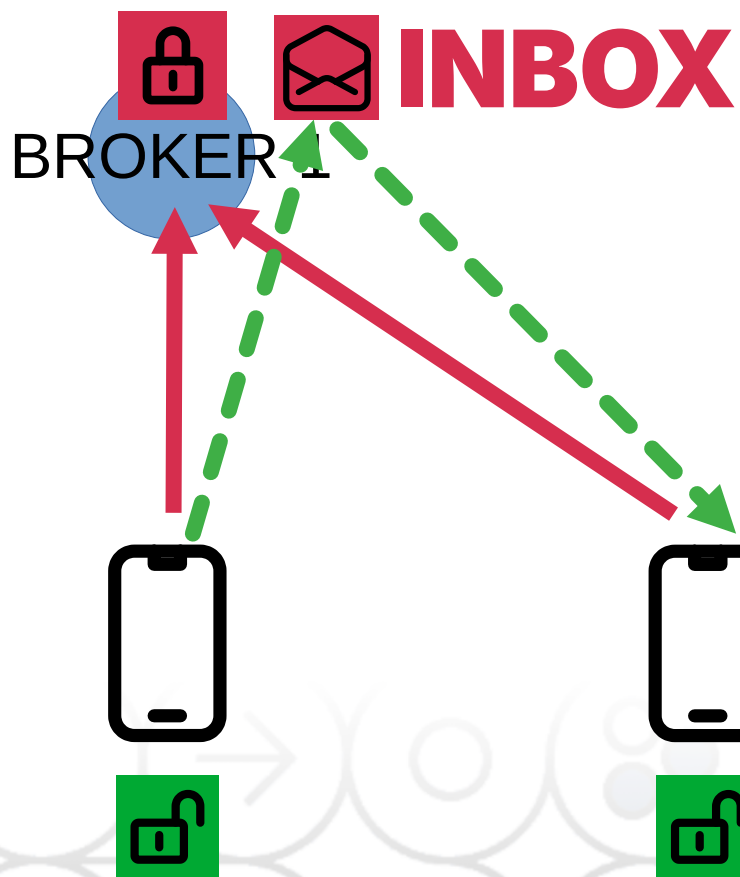
E2EE : all the logic is in the client





- ✗ Cannot read the data
- ✗ Cannot run Queries
- ✗ Cannot run Services

- ✓ Can read the local data
- ✓ Can run Queries locally
- ✓ Can run Services locally
- ✗ Cannot run global Queries



Passing messages
End-to-end encrypted to recipient
Can be replied to
Decrypted in the client

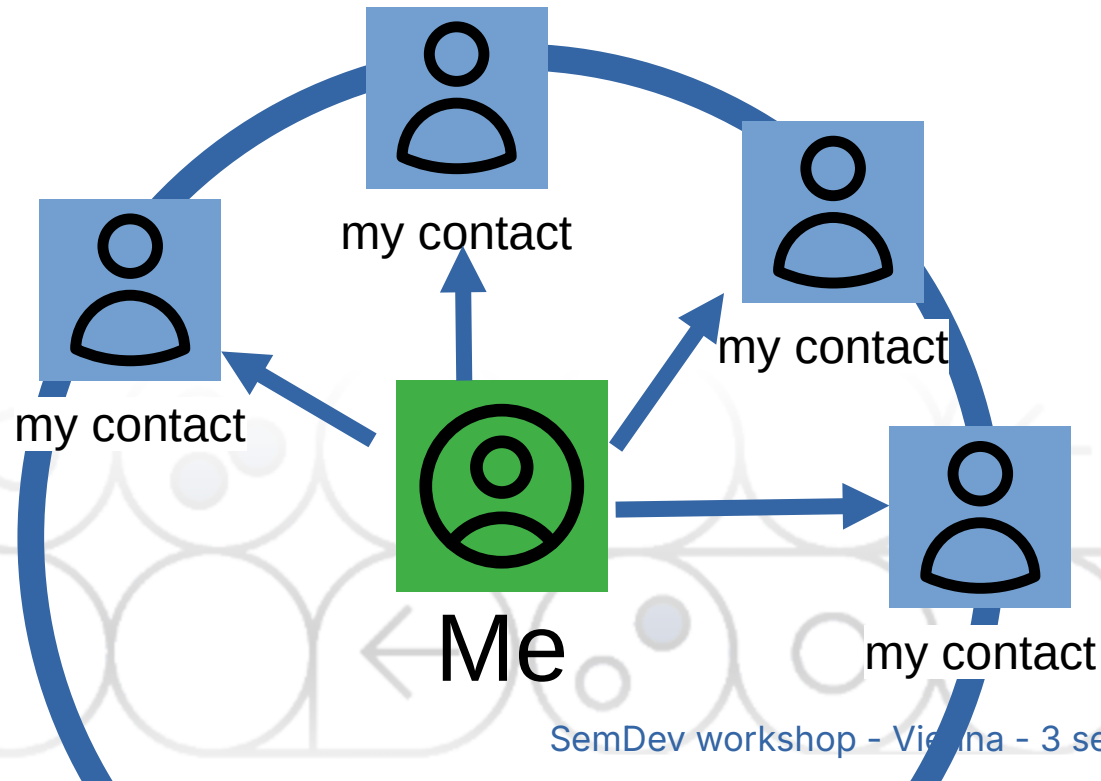
Used for

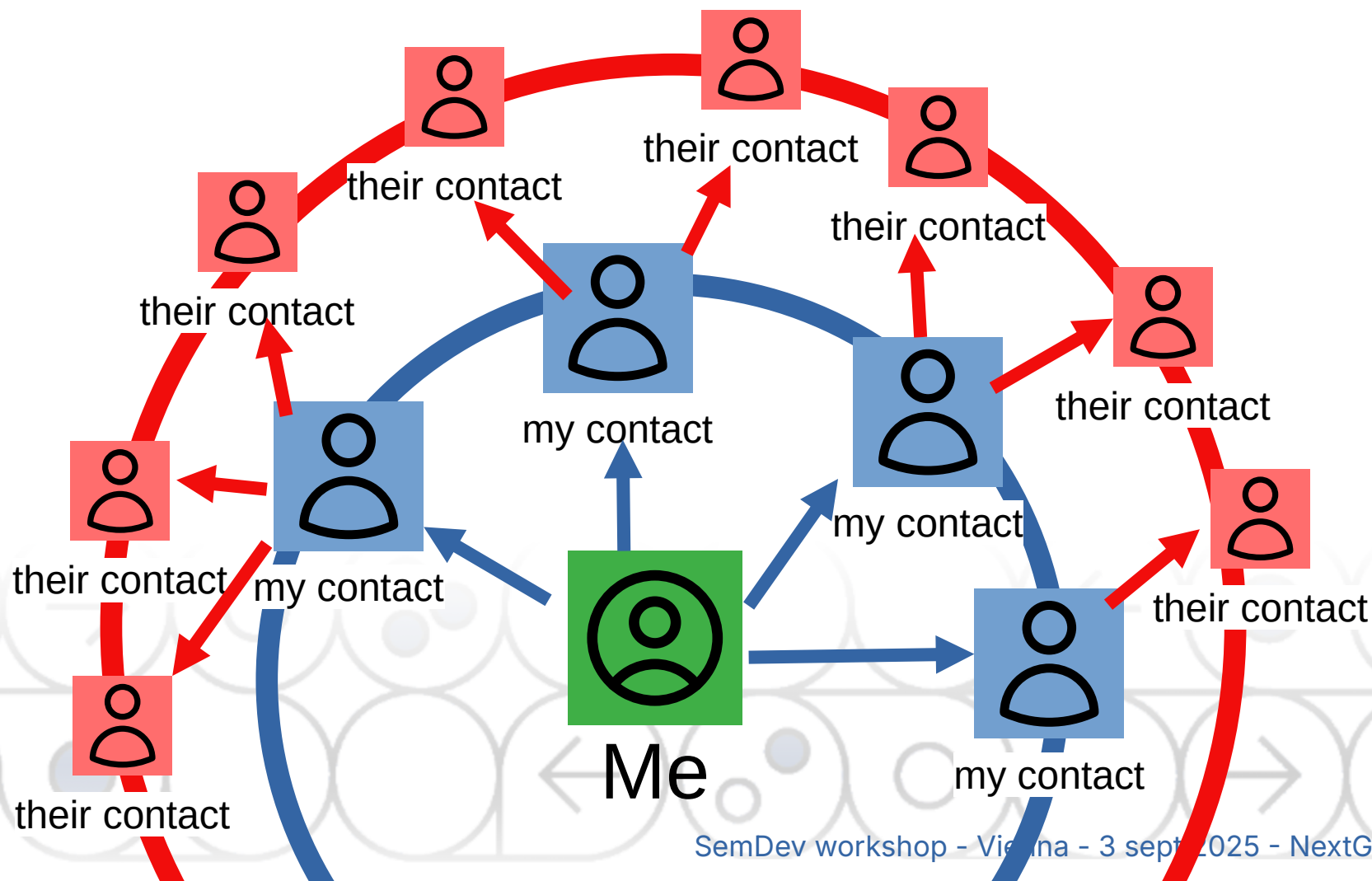
- sharing docs between users
- DMs
- comments and backlinks
- form submissions
- **Social Queries**

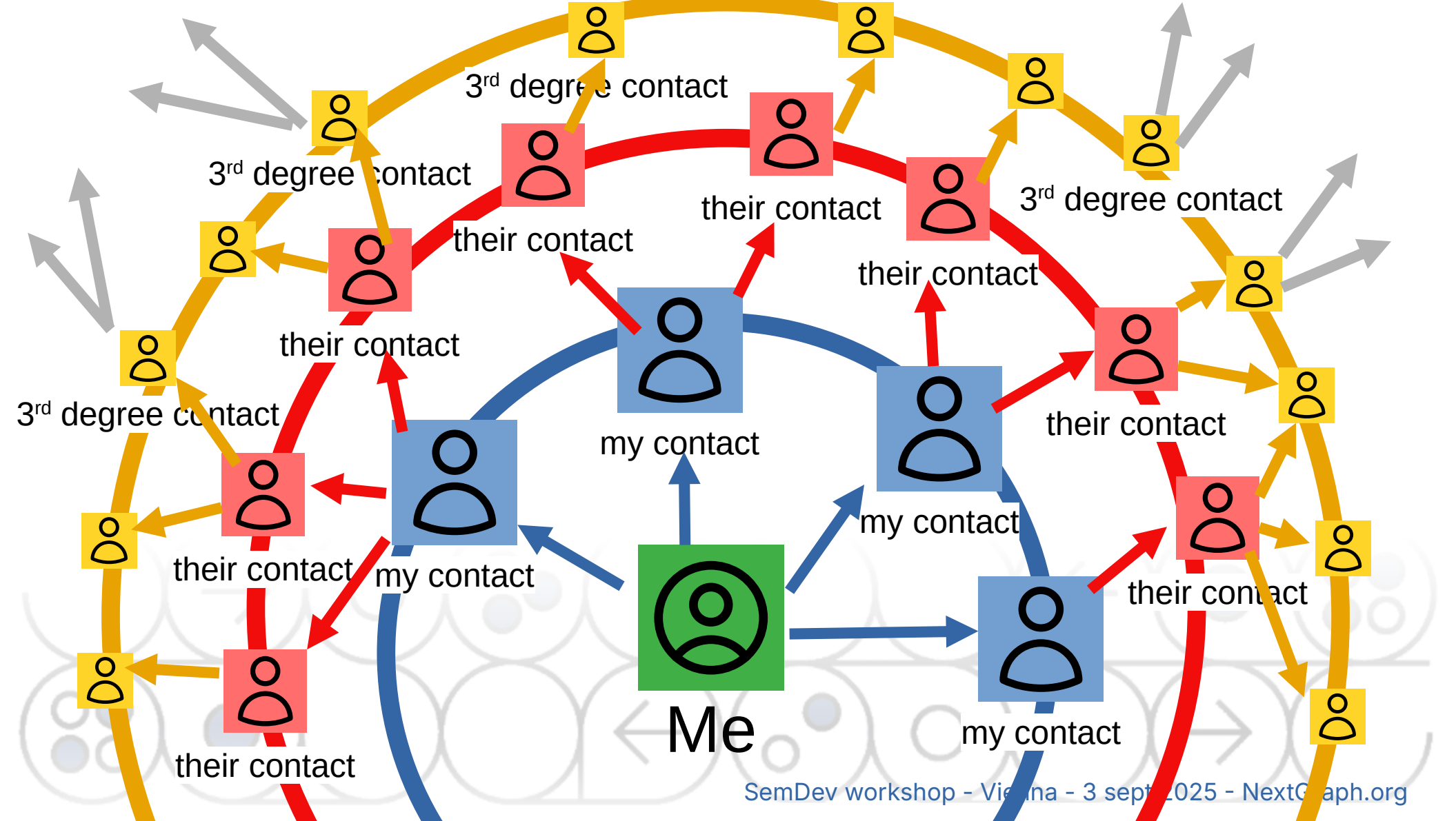
What is a Social Query ?

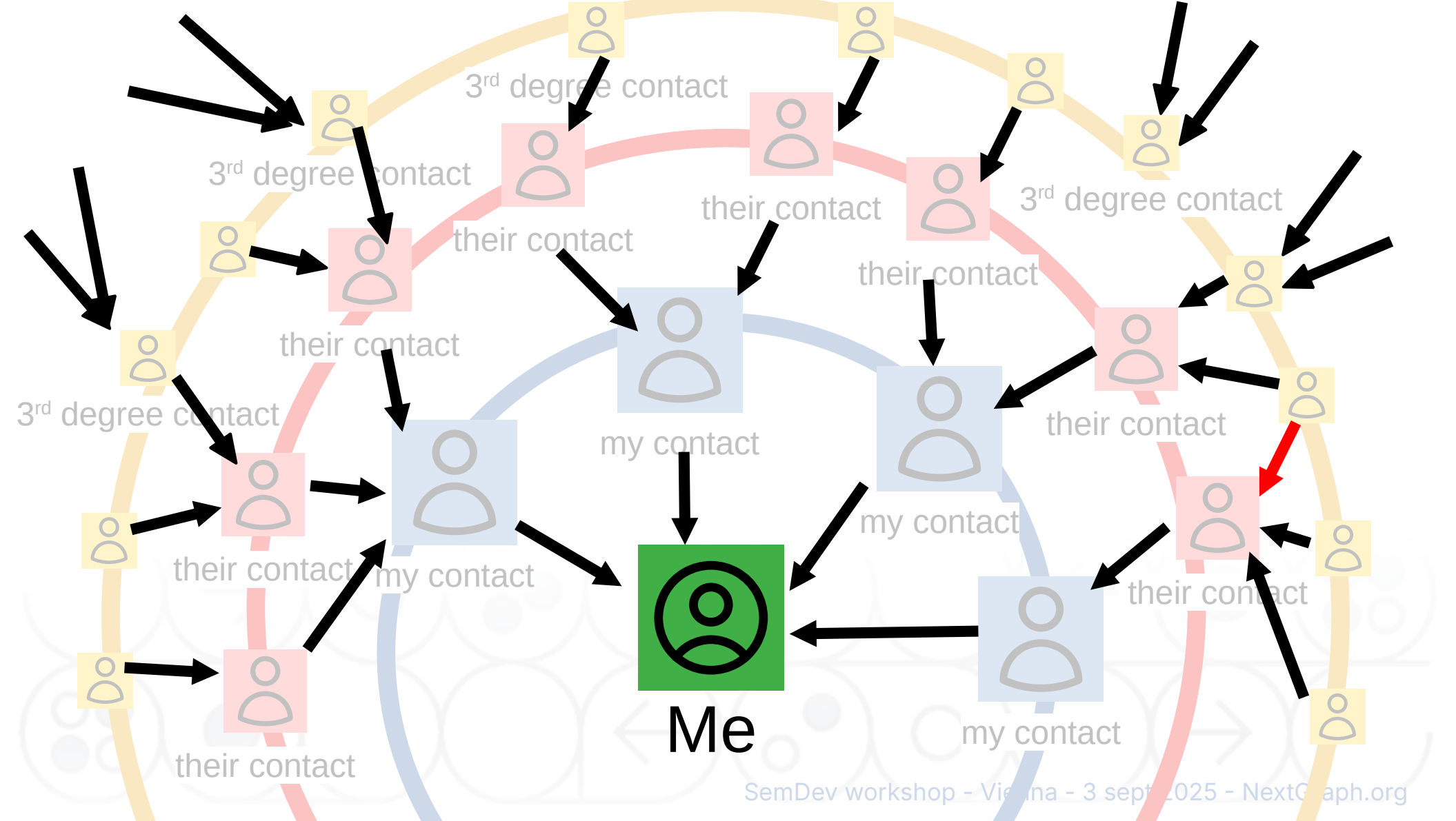


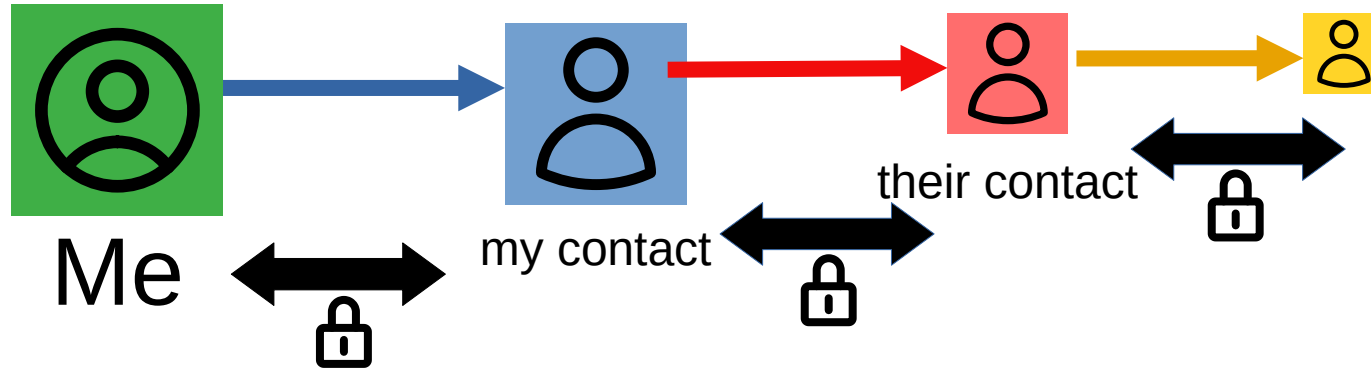
Me





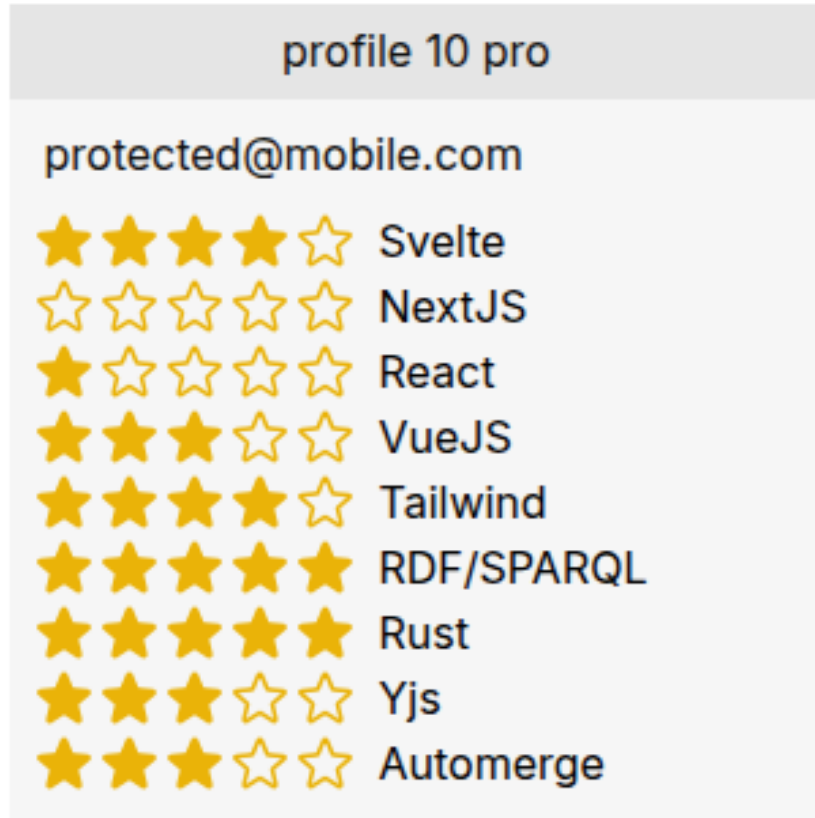






- Web of Trust & Integrity
- fixed or unlimited degree
- privacy: each hop anonymizes results
- cycle prevention
- asynchronous, intermittent \Rightarrow local first
- not always the same peer/replica

1) Rate our contacts' skills



2) Query with SPARQL
for matching contacts
- mandatory skills
- optional skills

3) Aggregate results
and rank them

Code of this demo

[https://git.nextgraph.org/
NextGraph/demo-berlin-
final](https://git.nextgraph.org/NextGraph/demo-berlin-final)

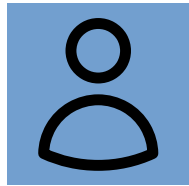


Video of full explanation (Berlin May 2025)

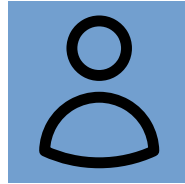
[https://www.youtube.com
/watch?v=gaadDmZWlZE](https://www.youtube.com/watch?v=gaadDmZWlZE)



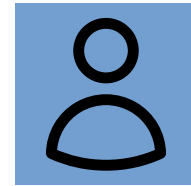
Demo time



Alice



Niko

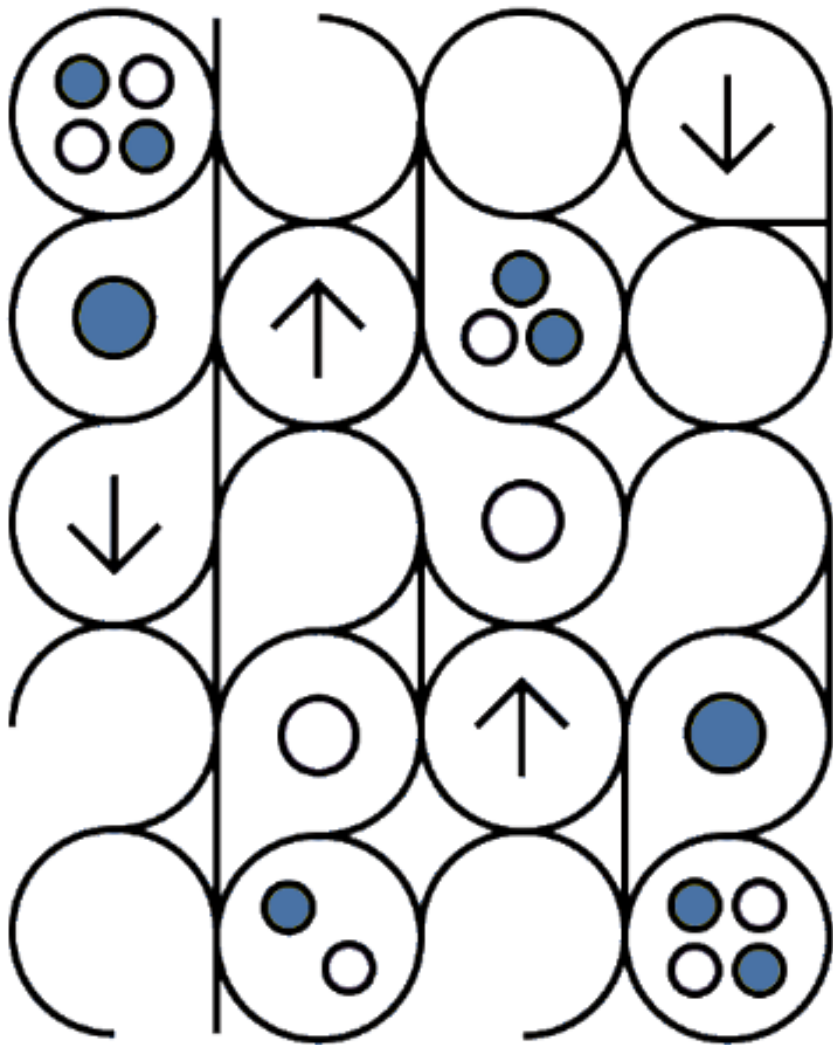


Bob

Rates the others



Queries



Thank you!



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mastodon:

`@nextgraph@fosstodon.org`

+ forum, newsletter

Come say hi