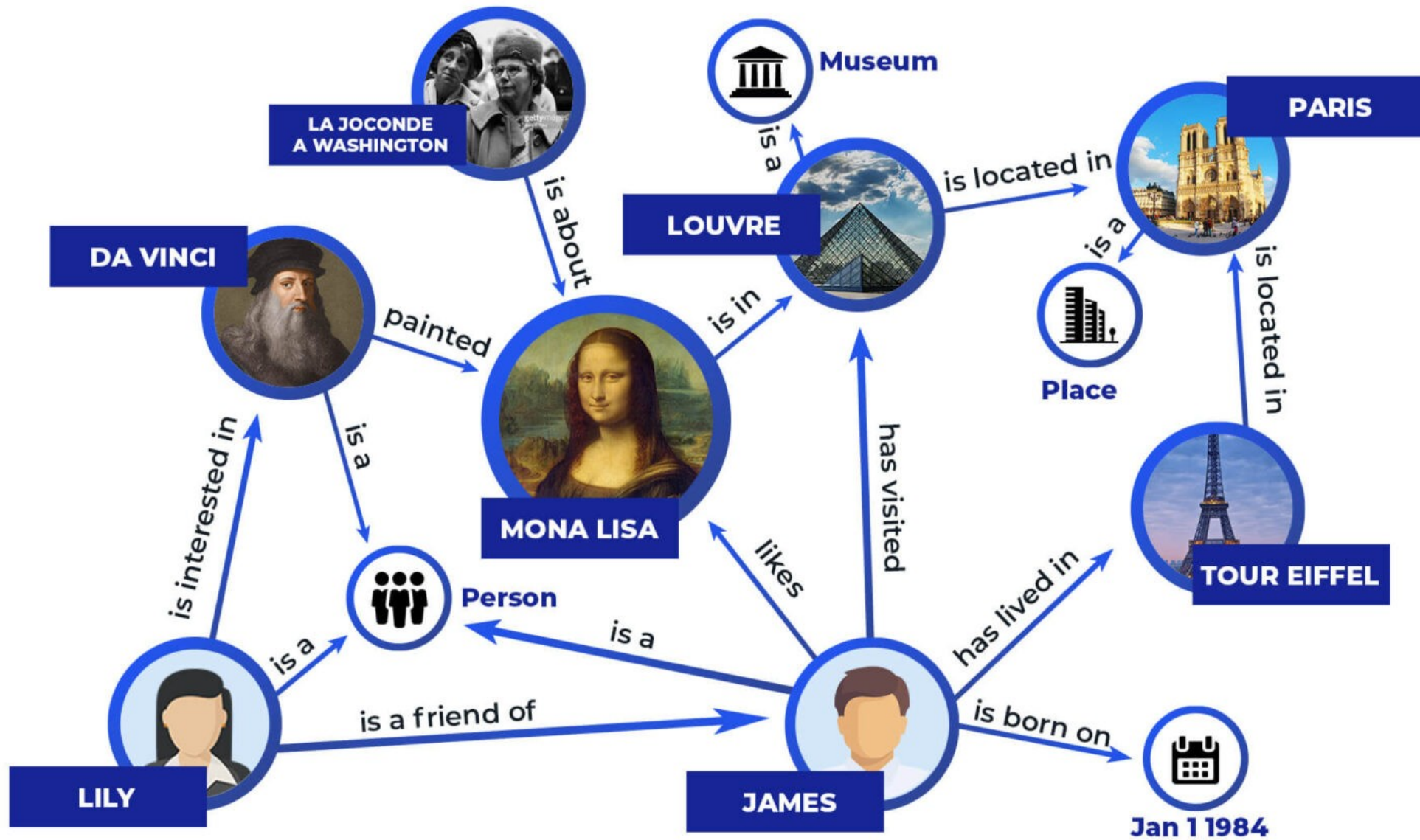


Niko Bonniere



Local-First Software:

"You Own Your Data, in spite of the Cloud"

Martin Kleppmann et al.

Solid Project:

*"true data ownership [..]
fully under users' control"*

Tim Berners-Lee



European Commission
DG CNECT



ASSURE



ZERO
COMMONS



NextGraph
.org



nlnet
FOUNDATION

SYNC PROTOCOL

FRAMEWORK / SDK

SYNC PROTOCOL

ECOSYSTEM of APPS

FRAMEWORK / SDK

SYNC PROTOCOL

WIP

Alpha/Preview version

ETA: 2025

Why another protocol ?

because local-first
changes everything

until ~2000
OFFLINE-
ONLY

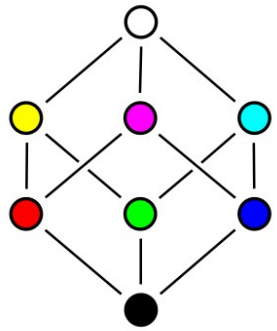


since 25
years
ONLINE-
ONLY

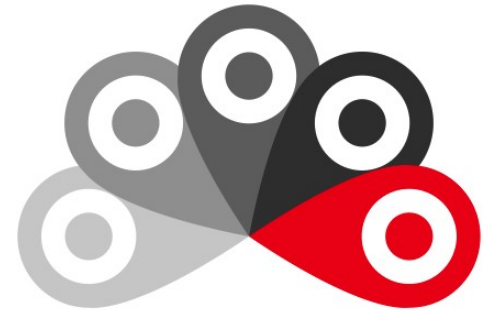


LOCAL-FIRST
= ONLINE + OFFLINE
+ LIVE COLLABORATION

Conflict-free Replicated Data Types

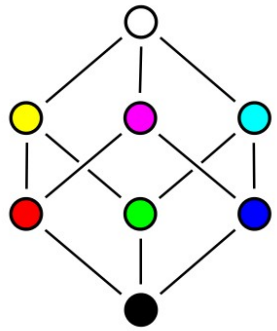


CRDT.tech

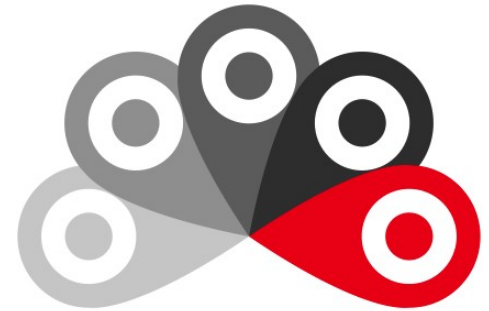


lofi.so

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)

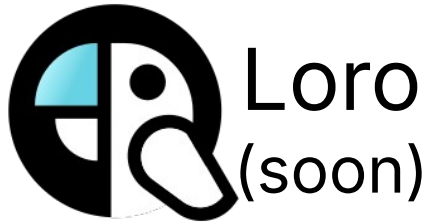


CRDT

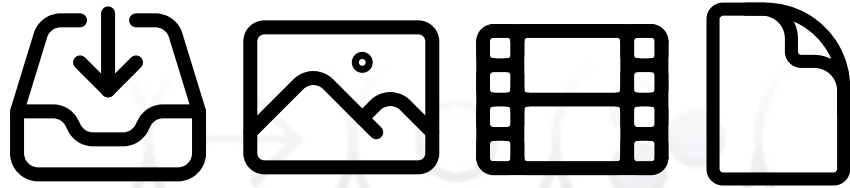


JSON
RichText
MarkDown
PlainText





JSON
RichText
MarkDown
PlainText

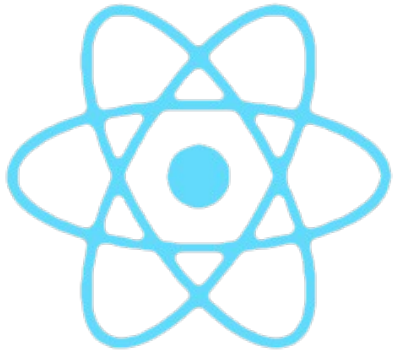


Immutable Binary Files
w/ Content Addressing

+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

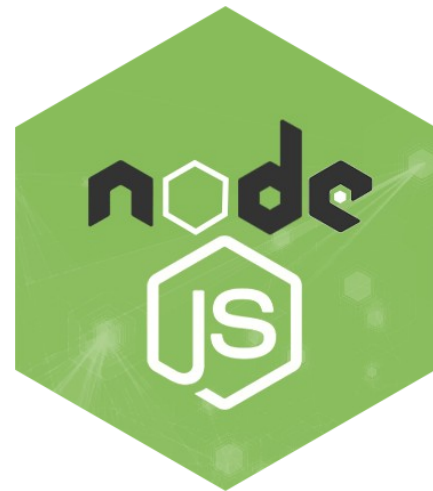


SVELTE

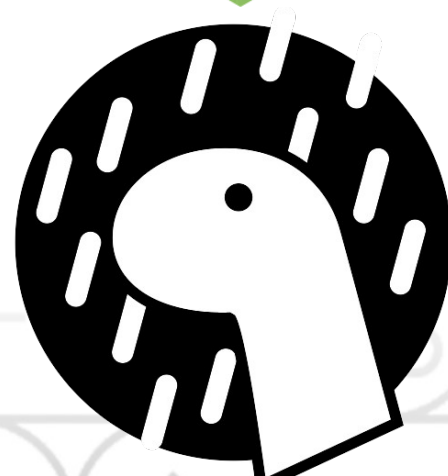


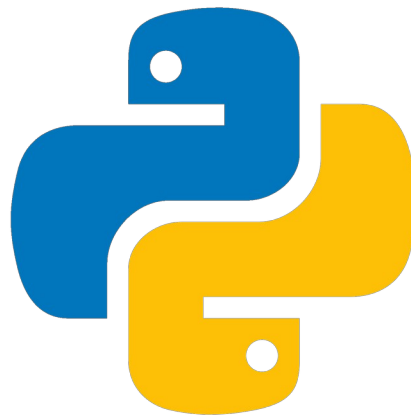
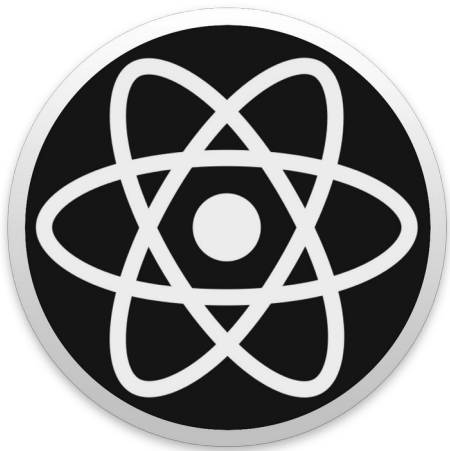
Vue.js
(soon)

Reactive stores

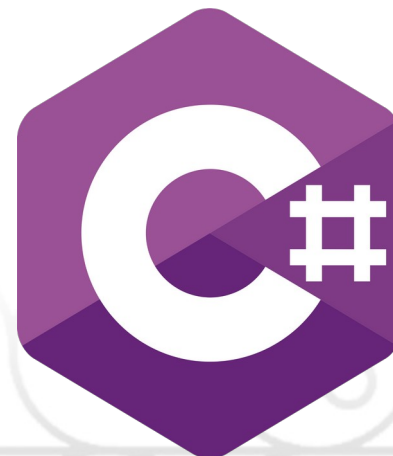


SDK

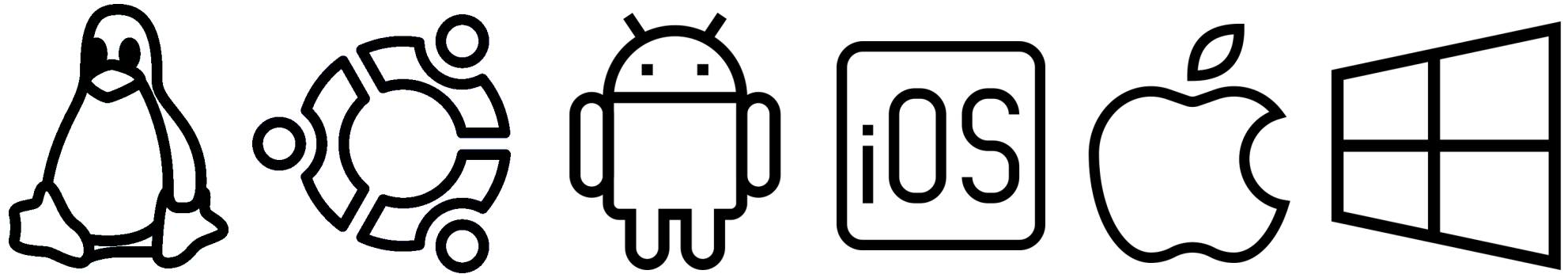




SDK
(soon)



Data Wallet



- Manage Documents
- Install and launch apps

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



Towards
more private
& decentralized
social
networks

And a complete suite of
apps for **productivity** tools
and daily professional and
personal use



**Data
fetching**



**Data
syncing**

Zero

Single Point of Failure

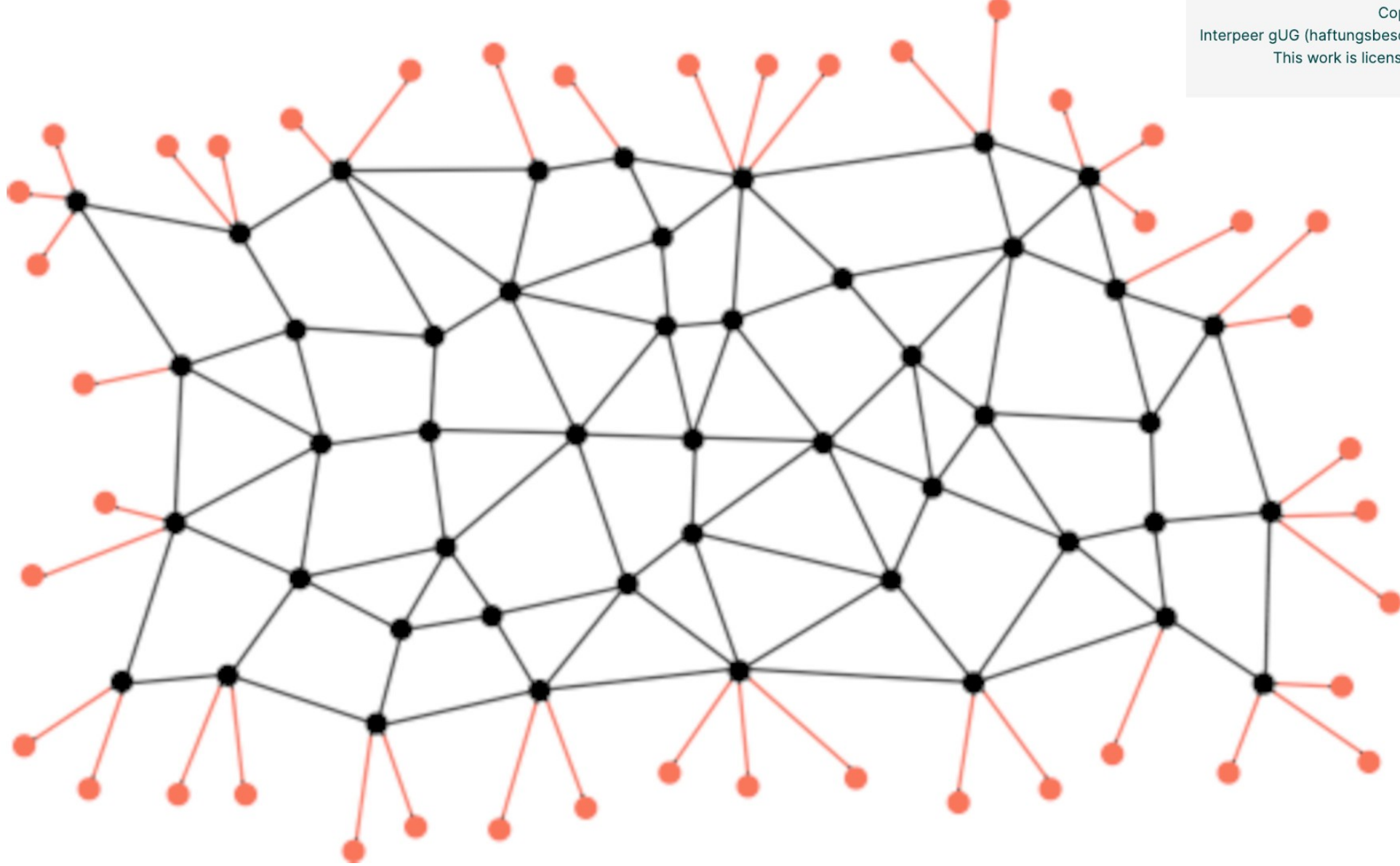
no domain name

P2P: How much
decentralization is
too much?

Brokers

2-tier network

Store and forward



Locality, Availability, Privacy, Backup, Failover



DIDs

Decentralized
Identifiers

Sovereign Identities

Data portability & durability

Access Control :

Cryptographic Capabilities

Read, Subscribe or Write

Compatible with HTTP
Run services
Headless CMS
WebApp

 ActivityPub &  Solid

—
 ActivityPods.org

Local JS API for



RDF &

SPARQL

Time travel - Integrity
revision history, revert
signatures \Rightarrow authenticity



Build social apps,
data-centric apps,
collaborative apps,
anything you want



LDO

Linked-Data Object

ldo.js.org

converts RDF into TS objects,
following some Shape definition



LDO

Linked-Data Object

ldo.js.org

Then binds your objects to **React** or **Svelte** components via reactive stores. VueJS coming soon

- Create your Vite app
- add LDO and NextGraph deps
- define your shape
- code your React components
- You get Auth with the NG Wallet

nextgraph.eu

localfirstapp.eu

[https://git.nextgraph.org/NextGraph/nextgraph-rs/
src/ng-sdk-js/example-webapp-react](https://git.nextgraph.org/NextGraph/nextgraph-rs/src/ng-sdk-js/example-webapp-react)

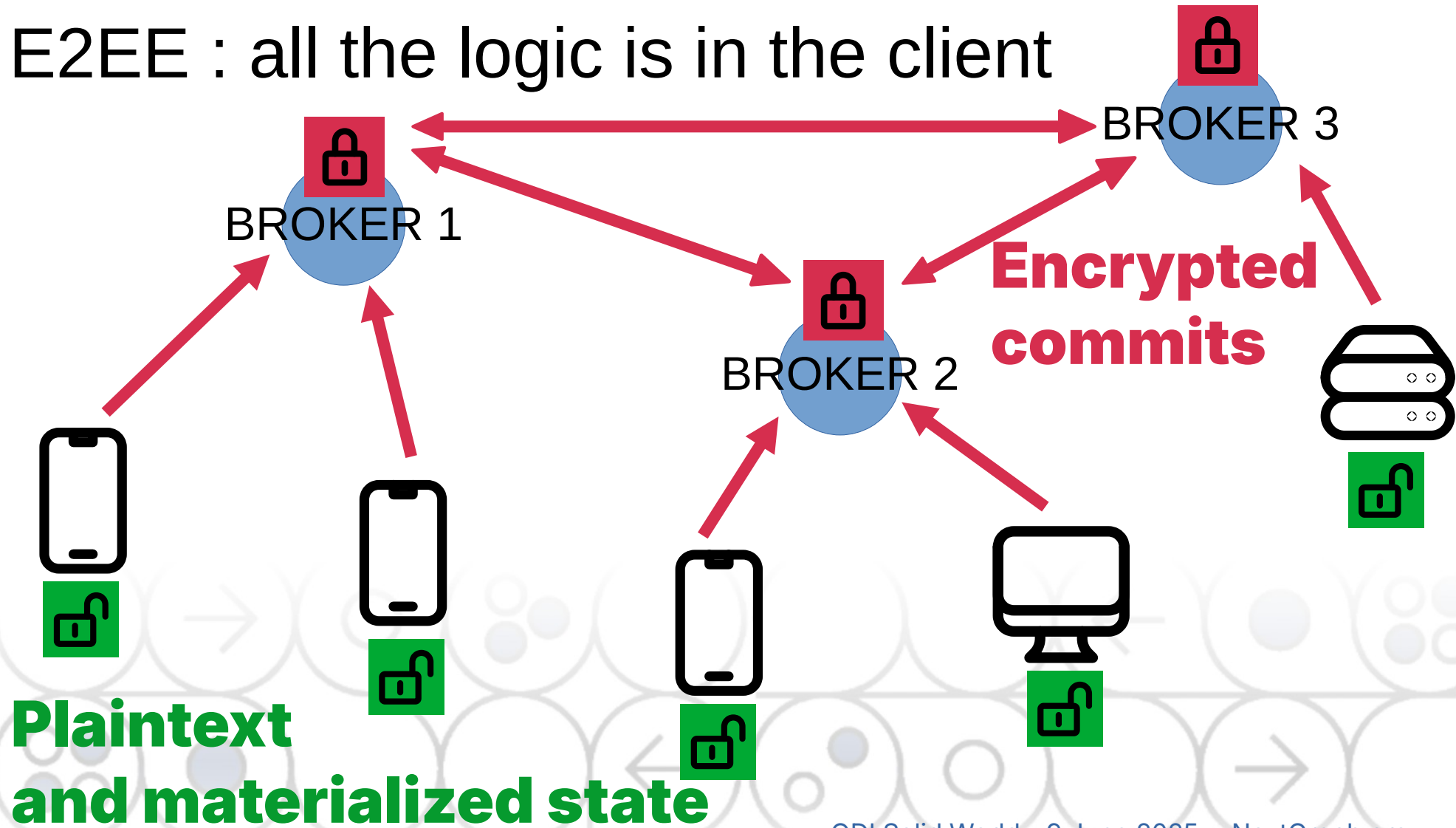
```
ngx:NGSocialContact EXTRA a {  
  a [vcard:Individual] ;  
  a [ schem:Person ] ;  
  a [ foaf:Person ] ;  
  vcard:fn xsd:string ? ;  
  vcard:hasEmail xsd:string ?  
}
```



```
<div className="contact" title={nuri}>
  <span className="name">
    {contact.fn}
  </span>
  <span className="email text-left">
    email:&nbsp;{contact.hasEmail}
  </span>
</div>
```

Social Queries :
send SPARQL queries in
your social graph

E2EE : all the logic is in the client





Cannot read the data



Cannot run Queries



Cannot run Services



Can read the local data



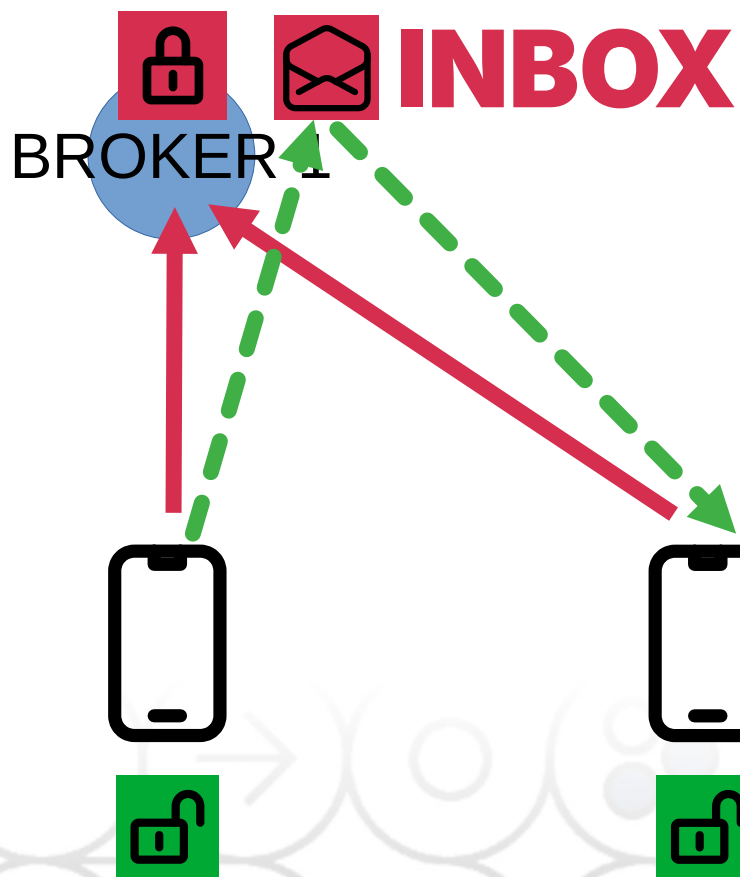
Can run Queries locally



Can run Services locally



Cannot run global Queries



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

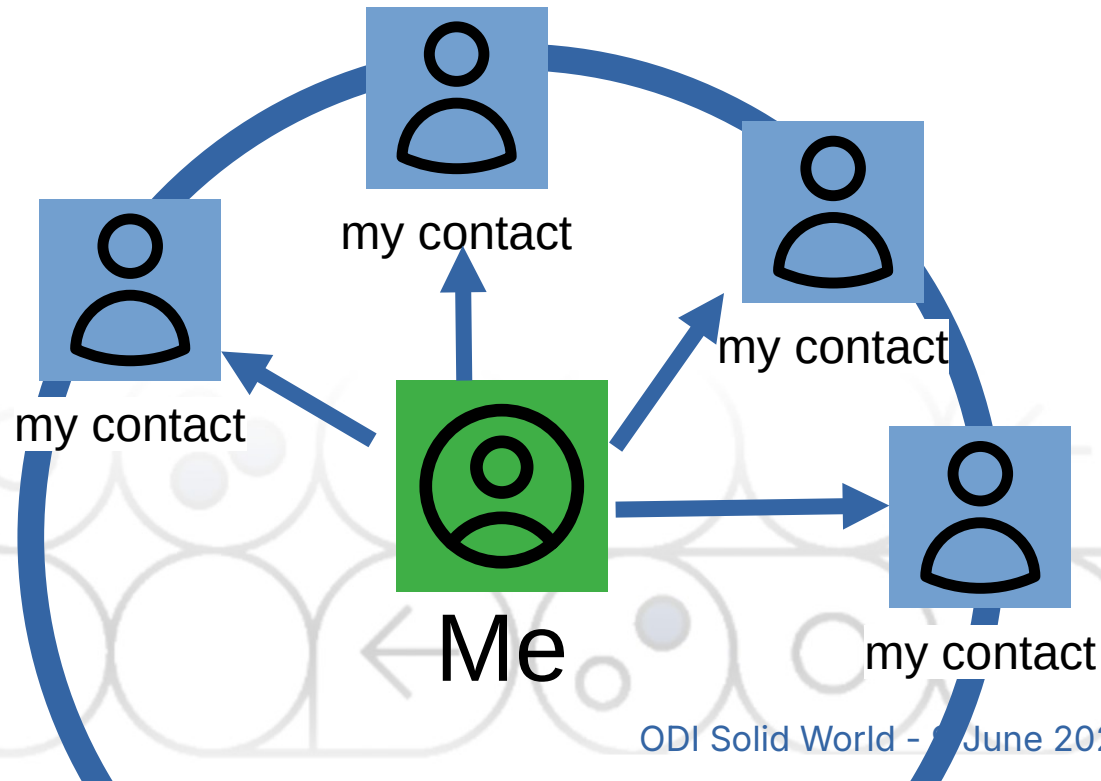
Used for

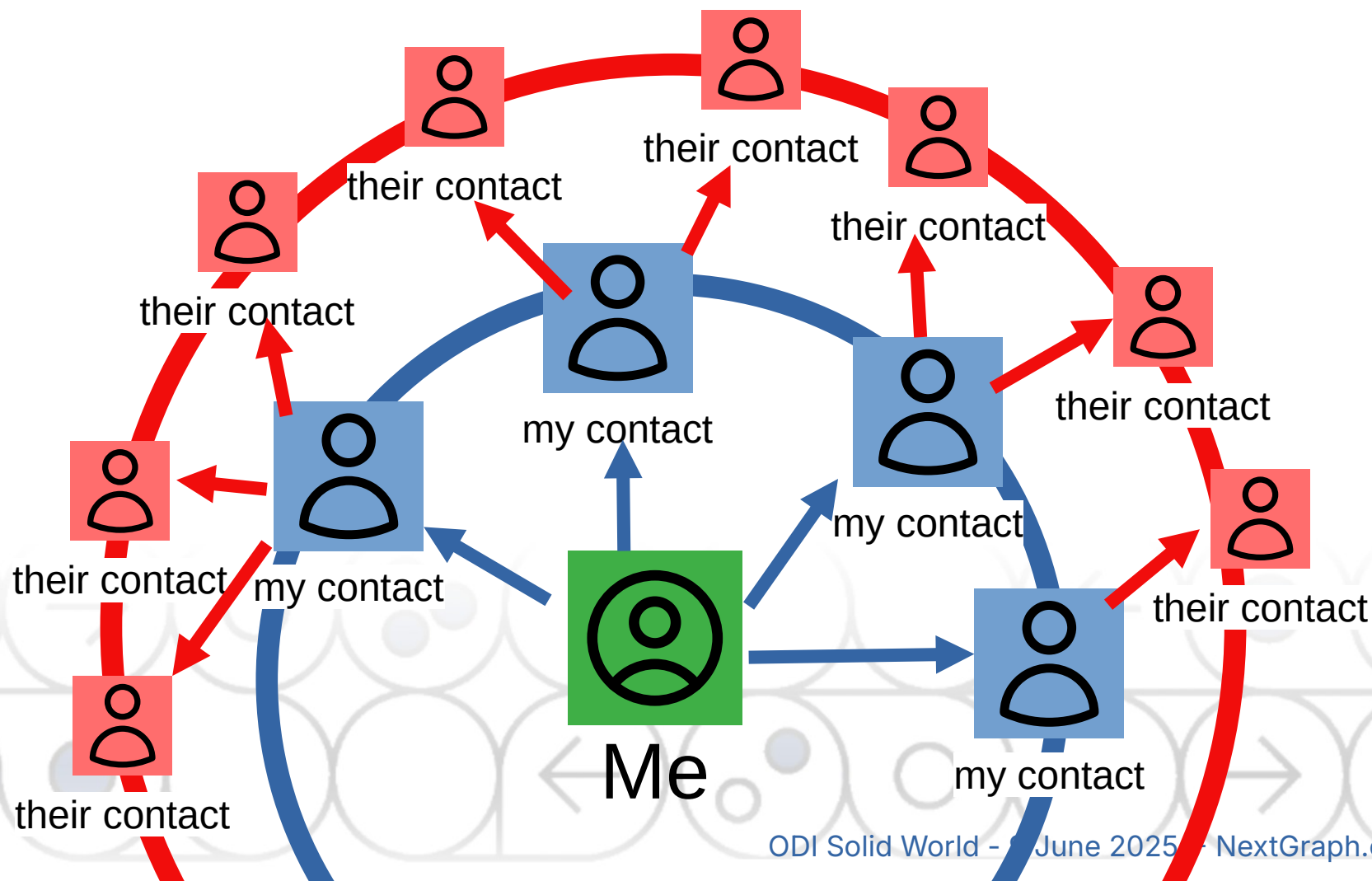
- sharing docs between users
- DMs
- comments and backlinks
- form submissions
- **Social Queries**

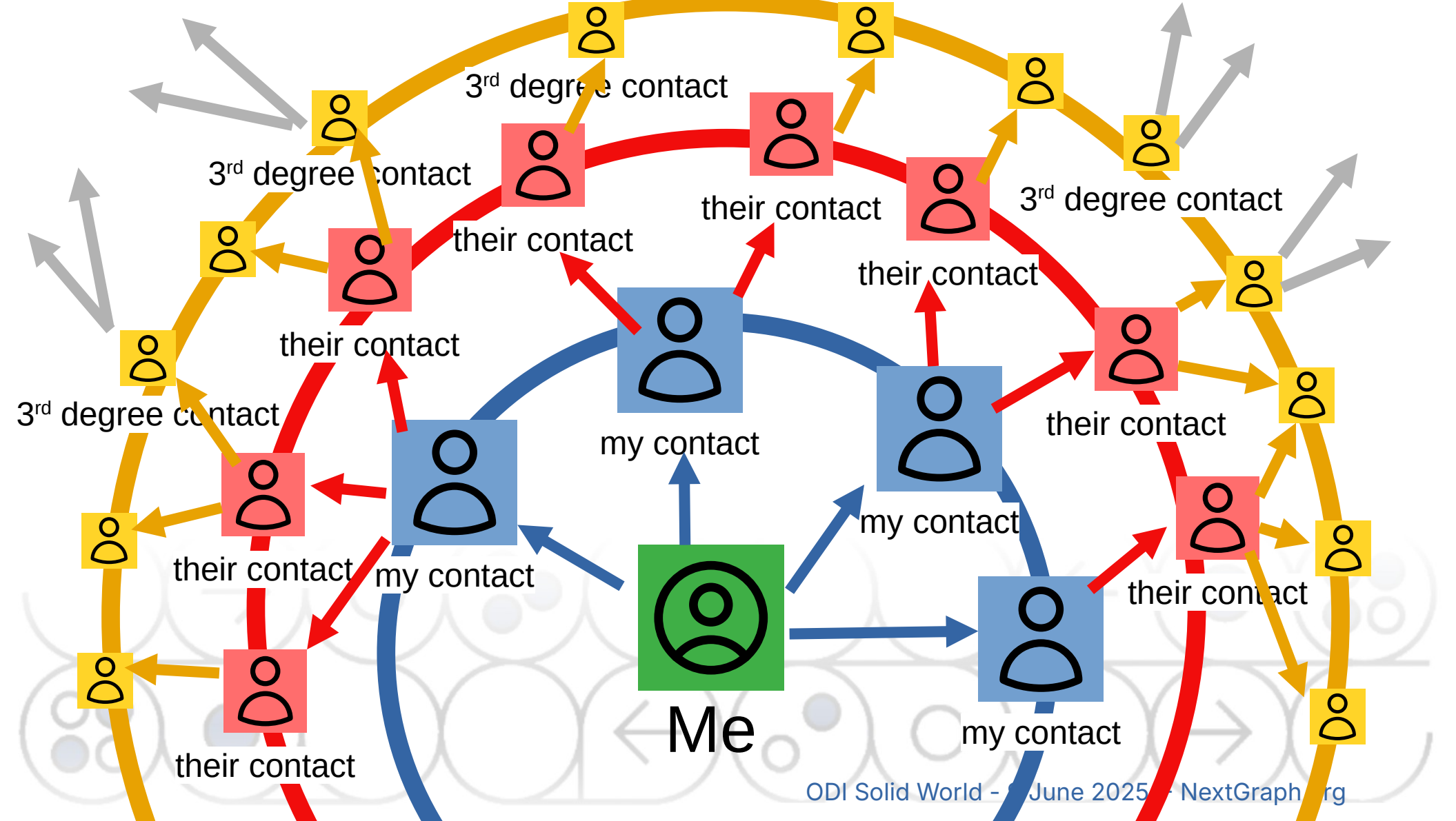
What is a Social Query ?

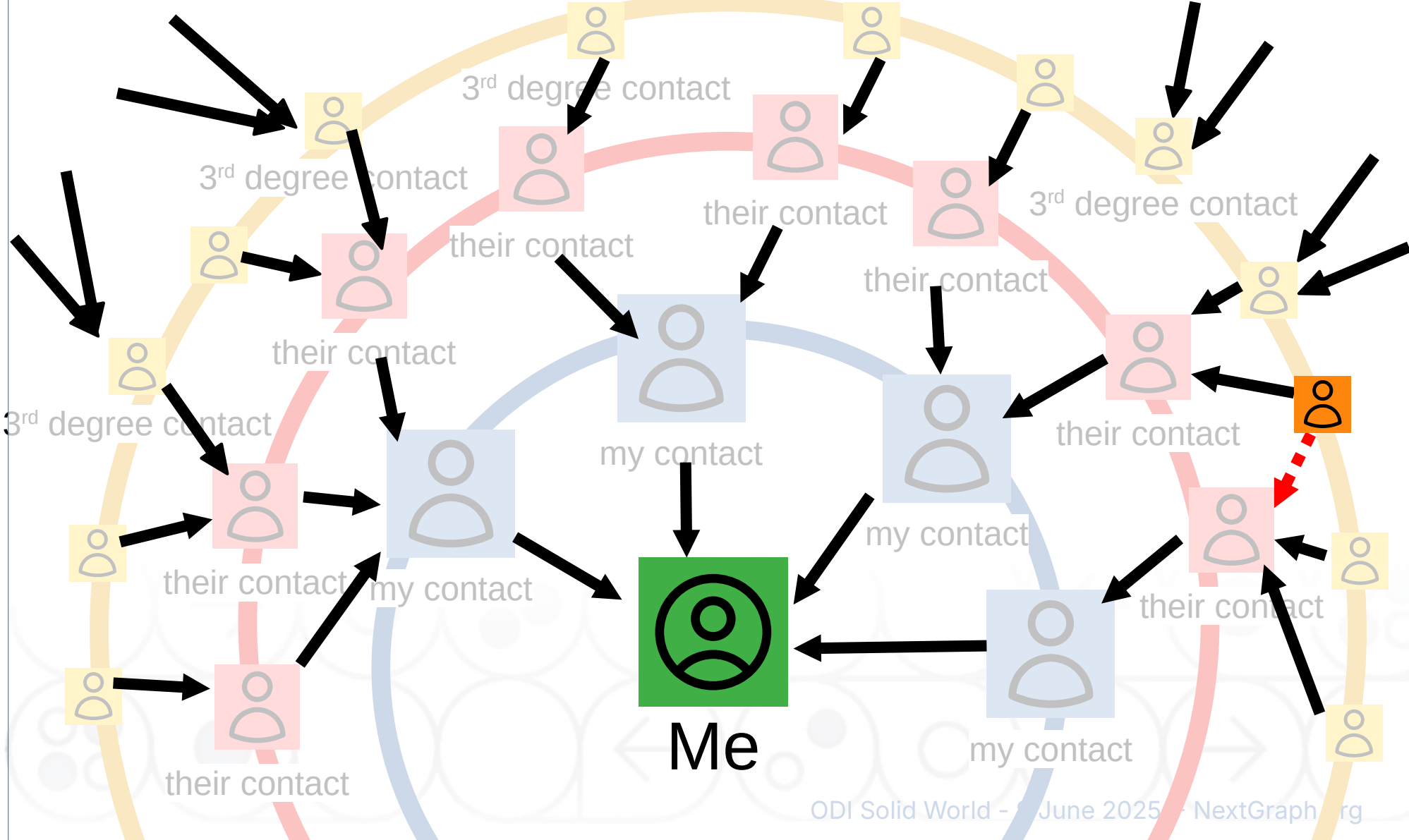


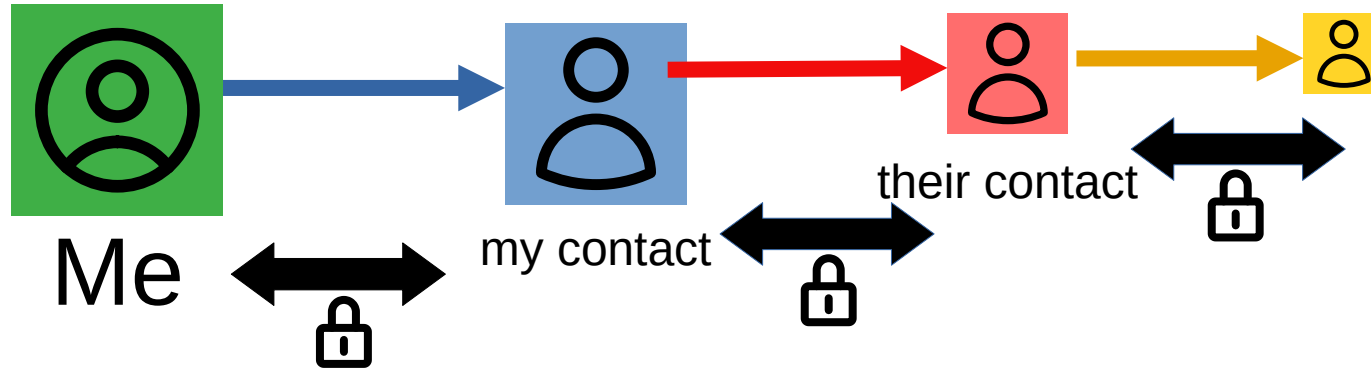
Me





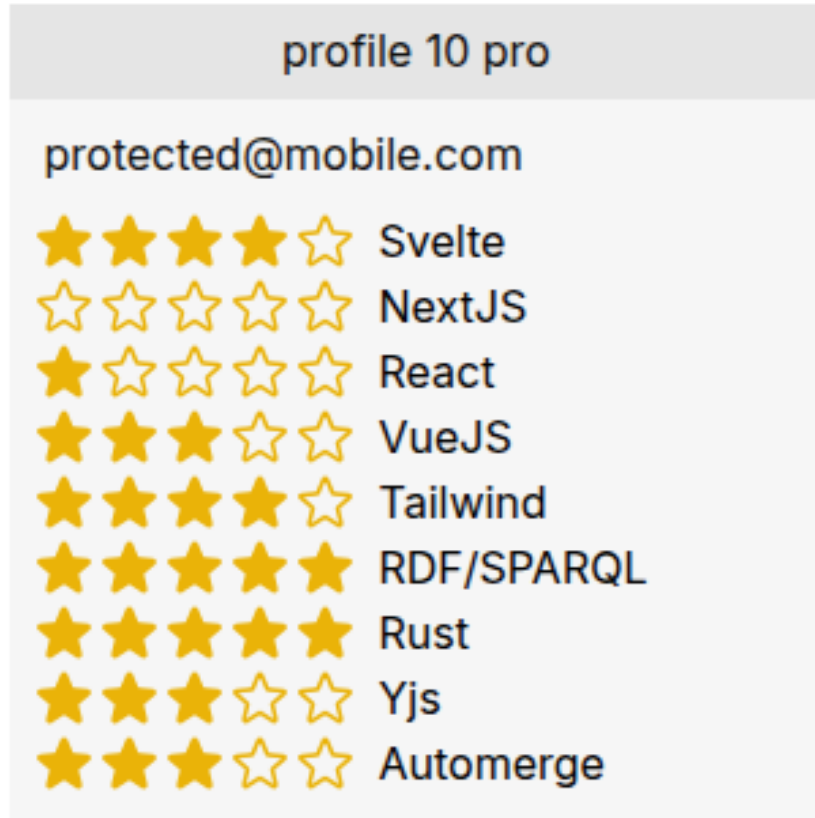






- Web of Trust & Integrity
- fixed or unlimited degree
- privacy: each hop anonymizes results
- cycle prevention
- asynchronous, intermittent \Rightarrow local first
- not always the same peer/replica

1) Rate our contacts' skills



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

3) Aggregate results
and rank them

nextgraph.eu
localfirstapp.eu

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

We are still in alpha / preview mode

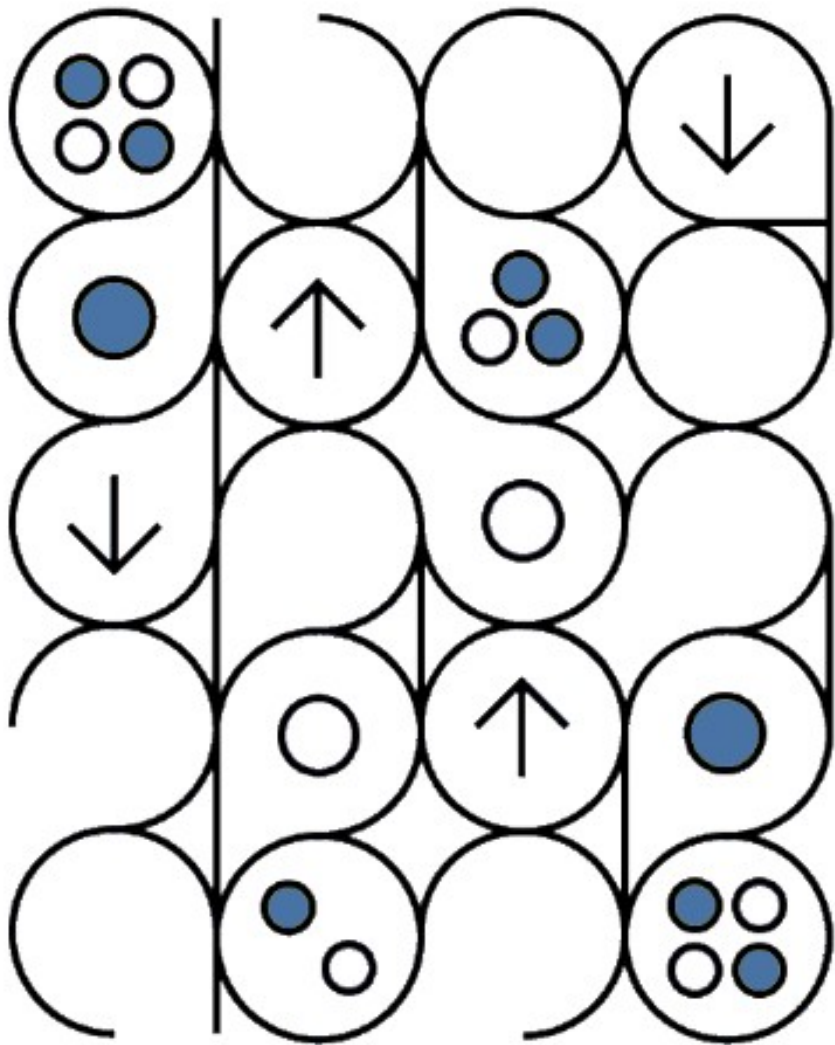
Please bare with us until beta is released.
Also full documentation of API and SDK
will come soon

We are looking for devs

Rust

Svelte Tailwind

RDF/SPARQL



Thank you!



niko@nextgraph.org

mastodon:

@nextgraph@fosstodon.org

+ forum, newsletter

Contact us