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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

## ETA: mid 2025

# Why another protocol ?



# LOCAL-FIRST





until ~2000  
OFFLINE-  
ONLY

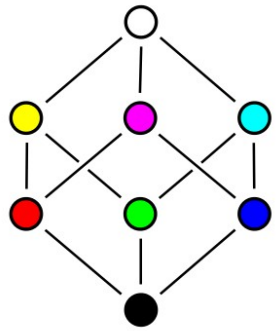


since 25  
years  
ONLINE-  
ONLY

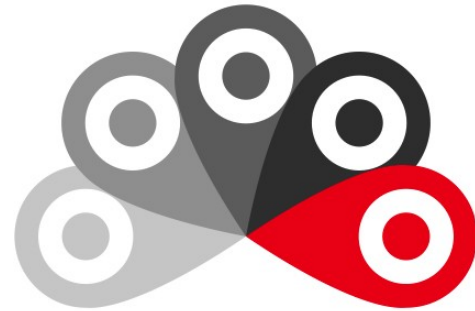


**LOCAL-FIRST**  
**= ONLINE + OFFLINE**  
**+ LIVE COLLABORATION**

# Conflict-free Replicated Data Types

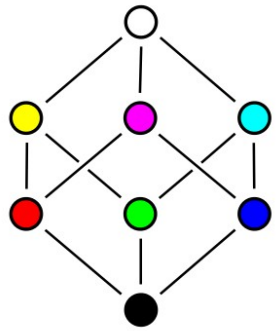


**CRDT.tech**

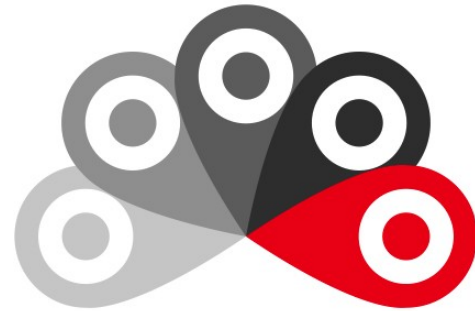


**lofi.so**

# 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

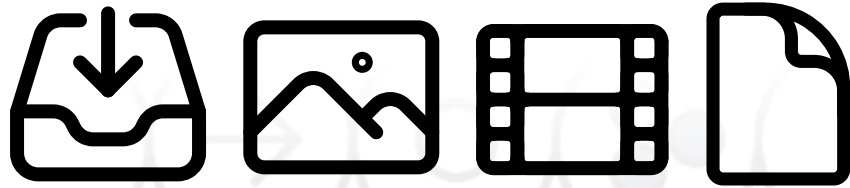


JSON  
RichText  
MarkDown  
PlainText



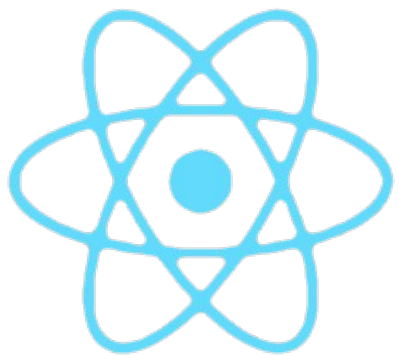


JSON  
RichText  
MarkDown  
PlainText



Immutable Binary Files  
w/ Content Addressing

# NextGraph is a Framework / SDK for App Developers



React

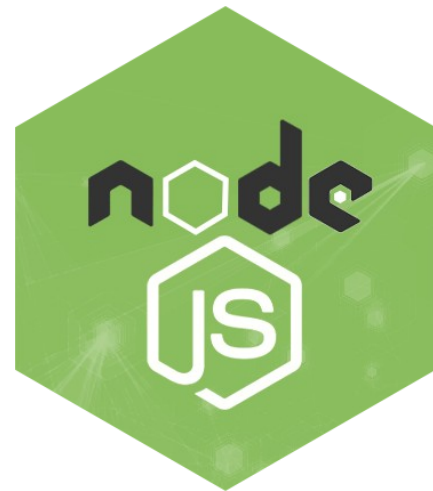


SVELTE



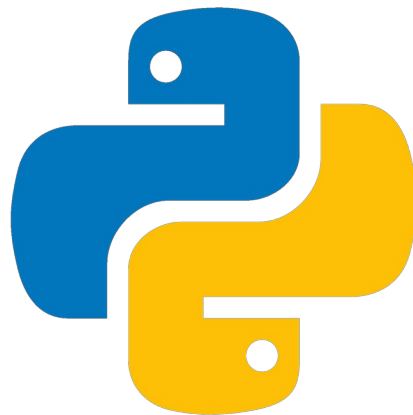
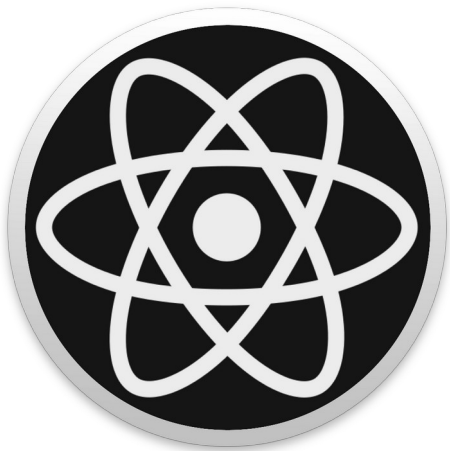
Vue.js  
(soon)

# Reactive stores



SDK

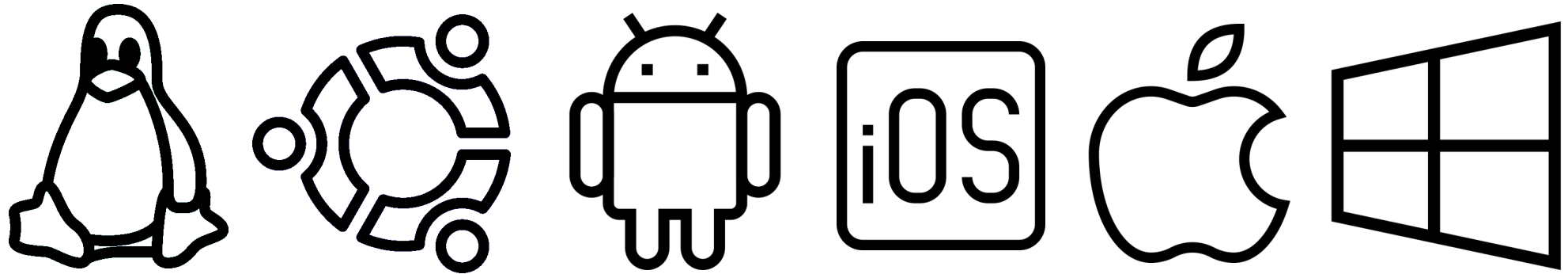




SDK  
(soon)



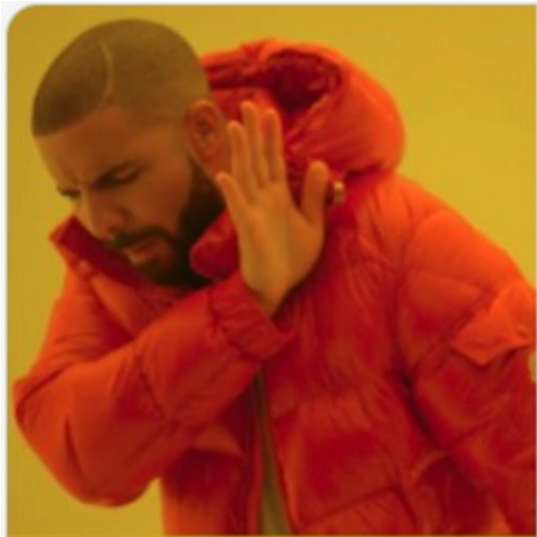
# NextGraph App



- Manage Documents
- Install and launch apps



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



**Data  
fetching**

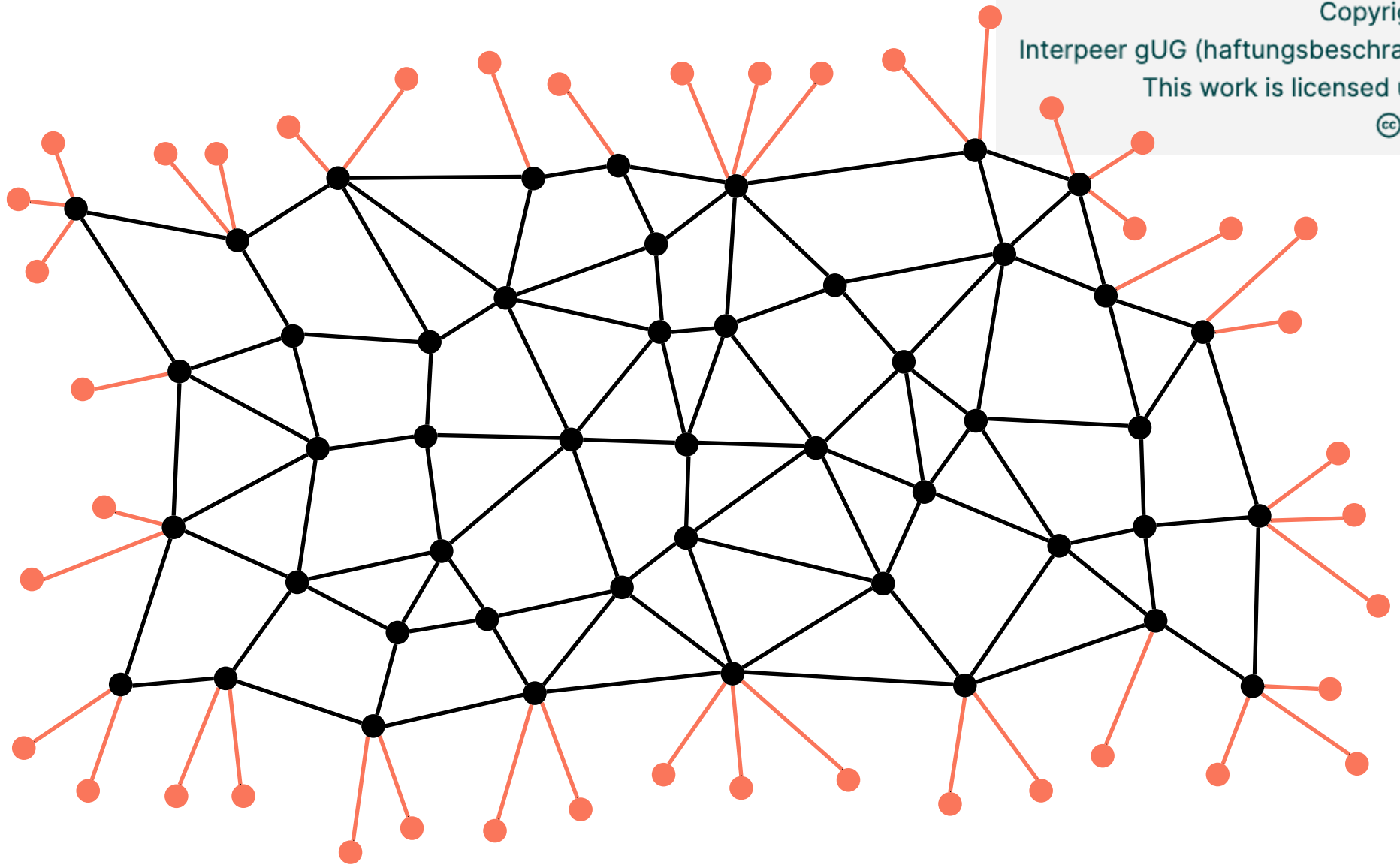


**Data  
syncing**

# The end of the Client-Server model

# SaaS Federation Self-hosted

Brokers,  
2-tier network,  
Store and forward



# Locality

# Availability

# Backup, Failover



DIDs

Decentralized  
Identifiers

Sovereign Identities



# Data portability & durability

—

## Cryptographic Capabilities

### Read or Write

Compatible with HTTP  
Run services  
Headless CMS  
WebApp

 ActivityPub &  Solid

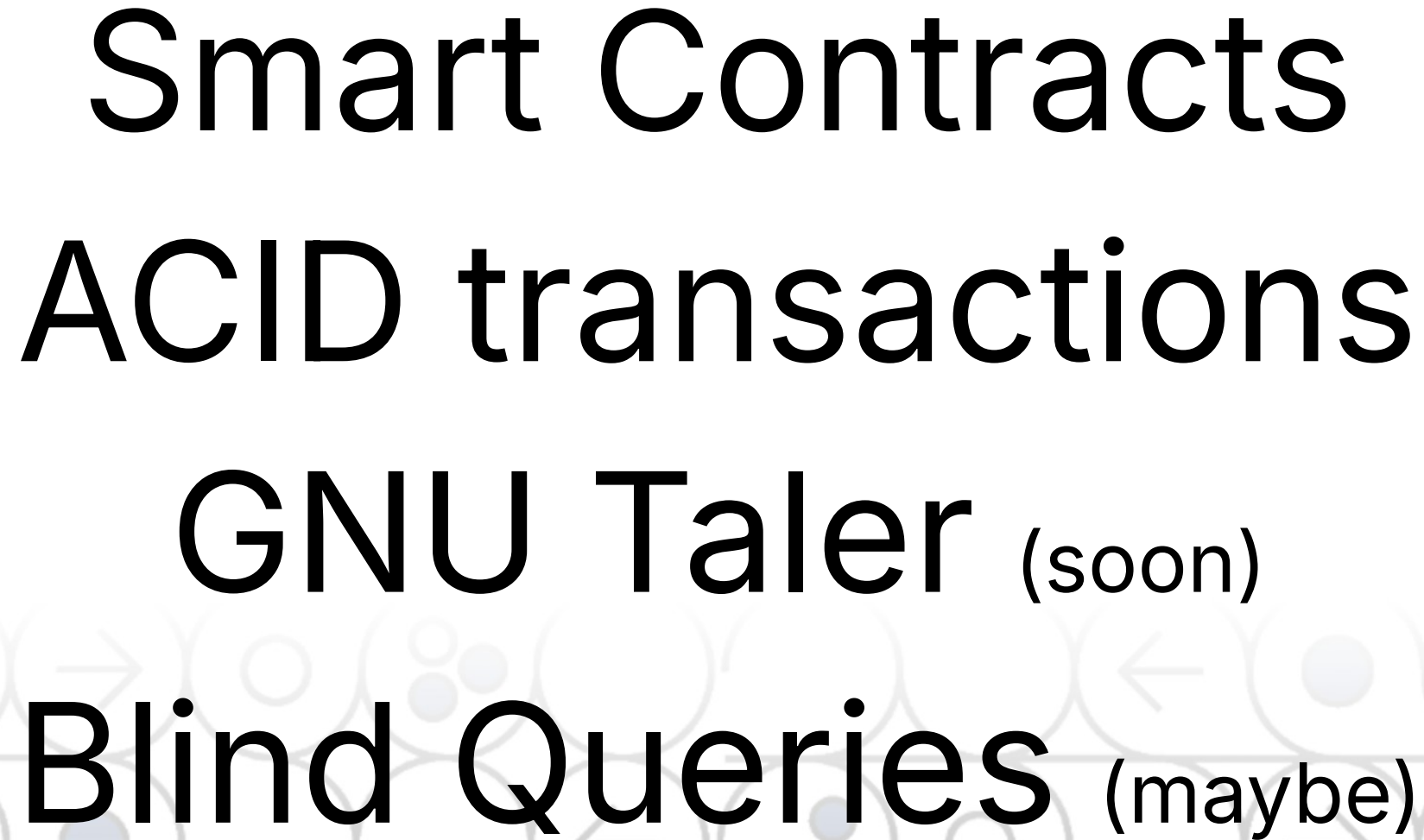
—  
 ActivityPods.org

# "Pod without a Pod"



## With RDF & SPARQL

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

The background of the slide features a faint, repeating pattern of overlapping circles and arrows, suggesting a network or data flow. The circles are light blue and white, and the arrows are thin grey lines.

Smart Contracts  
ACID transactions  
GNU Taler (soon)  
Blind Queries (maybe)



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

Framework :  
App composed of  
Schema (primary class)  
Viewers - Editors



Apps are composable  
reusable  
and interoperable

# App Store

# Web Apps

# Embedded or

# Standalone

# Permissions

## SAI : Solid Application Interoperability

Front-End Framework agnostic.

Dual nature of Document:

RDF + RichText or

RDF + JSON



LDO

Linked-Data Object

[ldo.js.org](http://ldo.js.org)

shape (SHEX) → React

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

```
ngx:NGSocialContact EXTRA a {  
  a [vcard:Individual ]  
    // rdfs:comment "Defines the node as an Individual (from vcard)" ;  
  a [ schem:Person ]  
    // rdfs:comment "Defines the node as a Person (from Schema.org)" ;  
  a [ foaf:Person ]  
    // rdfs:comment "Defines the node as a Person (from foaf)" ;  
  vcard:fn xsd:string ?  
    // rdfs:comment "The formatted name of a person. Example: John Smith" ;  
  vcard:hasEmail xsd:string ?  
    // rdfs:comment "The person's email." ;  
}
```

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

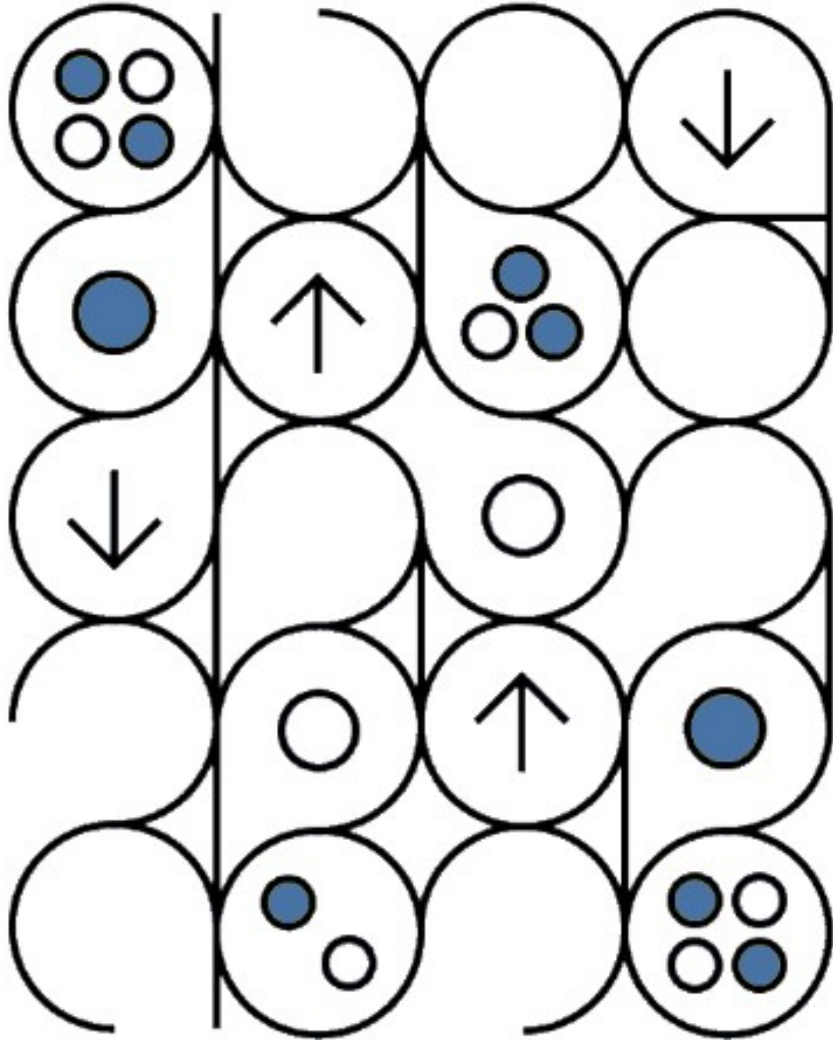


nextgraph.eu  
localfirstapp.eu



# Demo time !





niko@nextgraph.org

mastodon:

@nextgraph@fosstodon.org

+ forum, newsletter

Come say hi



`niko@nextgraph.org`

mastodon:

`@nextgraph@fosstodon.org`

+ forum, newsletter

Come say hi