Solid
S
Unleashed

3rd Solid Symposium, April 25th 2025, Leiden

Noel De Martin
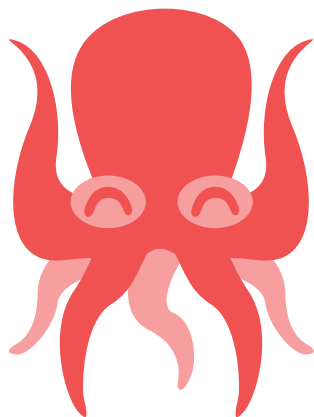
Hello, my name is Noel!

I've built a few Solid Apps...

Focus
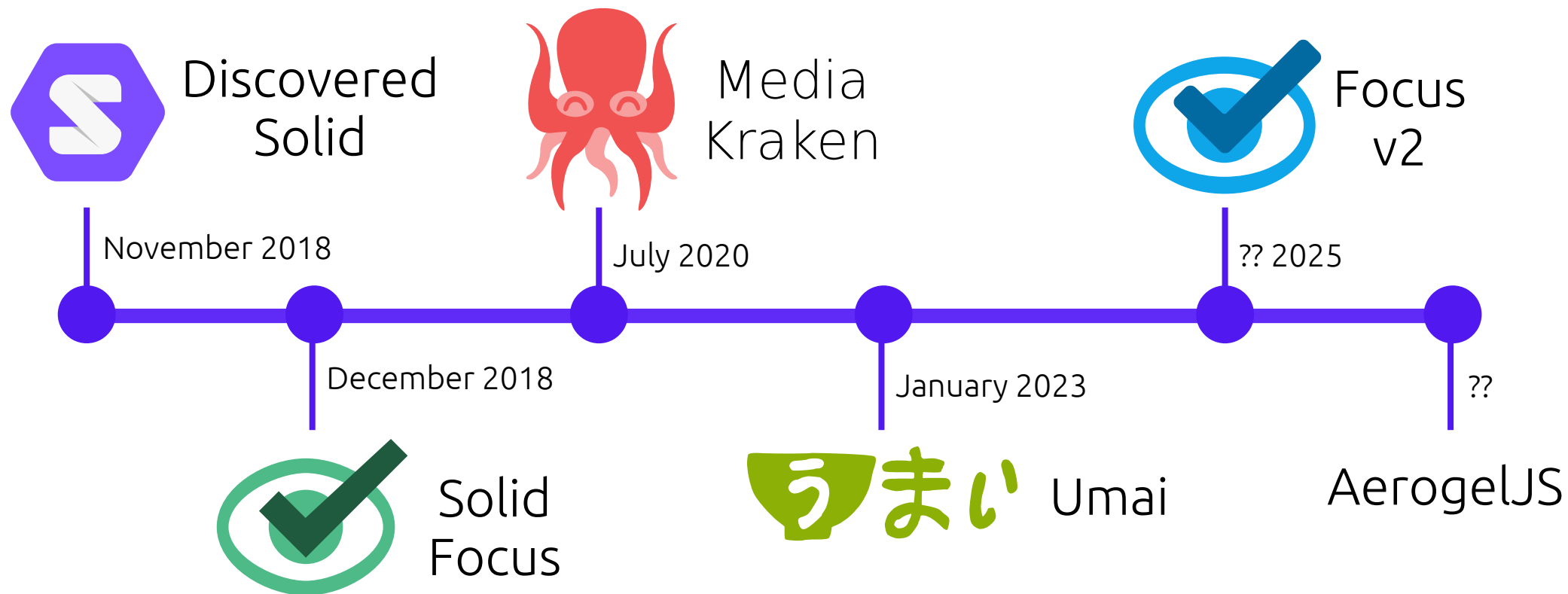
Media Kraken

Umai

Find them at noeldemartin.com/projects

From Zero to Hero with Solid (2023)

noeldemartin.com/fosdem

noeldemartin.com/solid-symposium-2025

Timeline so far

Discovered Solid

November 2018

December 2018

Solid Focus

Media Kraken

July 2020

January 2023

うまい Umai

Focus v2

?? 2025

??

AerogelJS

What's taking so long!?

Discovered
Solid

November 2018

December 2018

Solid
Focus

What's taking so long!?

- Side-projects
- Not just Solid
- Built my own tooling

PART 1:
Takeaways from building Solid Apps

PART 2:
The future of building Solid Apps

1 – The protocol is very simple

- You can learn it in <1 hour
  - RDF Primer
  - RDF Schema
  - LDP Primer
  - Turtle
  - Solid Protocol

1 – The protocol is very simple

- You can learn it in <1 hour

- The simplest Hello World: hello.0data.app/solid
    - Vanilla JS + HTML
    - Only 2 dependencies:
        - Turtle parser
        - Authentication library

1 – The protocol is very simple

- You can learn it in <1 hour

- The simplest Hello World: hello.0data.app/solid

- Authorization notwithstanding

  - WAC vs ACP vs "dialects"

  - SAI is *still* a draft

  - People can use other clients/apps

  - … or just keep everything private!

2 – Log in with Solid

Connect account

Log in to your **Solid account** to keep data safe across devices.

What is Solid?

https://me.solidcommunity.net   Log in

WebId? OIDC Issuer? POD domain?

2 – Log in with Solid

```typescript
import { login } from '@inrupt/solid-client-authn-browser';


async function loginWithSolid(url: string): Promise<void> {
    const profile = await fetchLoginUserProfile(url);

    const oidcIssuer = profile?.oidcIssuerUrl ?? urlRoot(profile?.webId ?? url);


    await login({ oidcIssuer, redirectUrl: window.location.href });

}


export async function fetchLoginUserProfile(url: string): Promise<SolidUserProfile | null> {
    return (
        (await fetchProfile(url)) ??
        (await fetchProfile(url.replace(/\/$/, '').concat('/profile/card#me'))) ??
        (await fetchProfile(urlRoot(url).concat('/profile/card#me')))
    );

}
```

3 – Error handling

P

Malformed Turtle document found at http://localhost:3000/noeldemartin/tasks/main/87a76393-cb20-4428-83ee-c44b6b401f2b - Unexpected "<!doctype" on line 1.

```
he@http://localhost:5173/node_modules/.vite/deps/chunk-KENY3DJX.js?v=0983aabe:21:5
P@http://localhost:5173/node_modules/.vite/deps/chunk-H2INEENV.js?v=0983aabe:19833:5
et/</<@http://localhost:5173/node_modules/.vite/deps/chunk-H2INEENV.js?v=0983aabe:20119:11
processNextToken@http://localhost:5173/node_modules/.vite/deps/chunk-H2INEENV.js?v=0983aabe:19385:14
reportSyntaxError@http://localhost:5173/node_modules/.vite/deps/chunk-H2INEENV.js?v=0983aabe:18152:15
_tokenizeToEnd@http://localhost:5173/node_modules/.vite/deps/chunk-H2INEENV.js?v=0983aabe:18134:18
tokenize/<@http://localhost:5173/node_modules/.vite/deps/chunk-H2INEENV.js?v=0983aabe:18220:35
VoidFunction*tokenize@http://localhost:5173/node_modules/.vite/deps/chunk-H2INEENV.js?v=0983aabe:18220:23
parse@http://localhost:5173/node_modules/.vite/deps/chunk-H2INEENV.js?v=0983aabe:19403:17
et/<@http://localhost:5173/node_modules/.vite/deps/chunk-H2INEENV.js?v=0983aabe:20116:130
et@http://localhost:5173/node_modules/.vite/deps/chunk-H2INEENV.js?v=0983aabe:20114:10
fromTurtle@http://localhost:5173/node_modules/.vite/deps/chunk-ANOJCT3N.js?v=0983aabe:339:21
getDocument@http://localhost:5173/node_modules/.vite/deps/chunk-ANOJCT3N.js?v=0983aabe:537:21
async*getDocument@http://localhost:5173/node_modules/.vite/deps/chunk-ANOJCT3N.js?v=0983aabe:939:26
readOne@http://localhost:5173/node_modules/.vite/deps/chunk-ANOJCT3N.js?v=0983aabe:890:26
loadDocumentChildrenFromRemote/l<@http://localhost:5173/node_modules/.vite/deps/@aerogel_plugin-local-first.js?v=0983aab
en/<@http://localhost:5173/node_modules/.vite/deps/@aerogel_plugin-local-first.js?v=0983aabe:411:56
loadDocumentChildrenFromRemote@http://localhost:5173/node_modules/.vite/deps/@aerogel_plugin-local-first.js?v=0983aabe:4
loadDocumentChildren@http://localhost:5173/node_modules/.vite/deps/@aerogel_plugin-local-first.js?v=0983aabe:456:14
async*loadContainedModels/<@http://localhost:5173/node_modules/.vite/deps/@aerogel_plugin-local-first.js?v=0983aabe:432:
loadContainedModels@http://localhost:5173/node_modules/.vite/deps/@aerogel_plugin-local-first.js?v=0983aabe:431:11
loadChildren@http://localhost:5173/node_modules/.vite/deps/@aerogel_plugin-local-first.js?v=0983aabe:731:26
loadChildren@http://localhost:5173/node_modules/.vite/deps/@aerogel_plugin-local-first.js?v=0983aabe:751:18
async*fetchRemoteModels/<@http://localhost:5173/node_modules/.vite/deps/@aerogel_plugin-local-first.js?v=0983aabe:674:30
```

3 – Error handling

Something went wrong, but it's not your fault. Try again! **View details**

- Fail gracefully
  - Catch all exceptions
  - Ignore individual document errors (malformed, permissions, etc.)
  - Keep logs

3 – Error handling

Something went wrong, but it's not your fault. Try again! **View details**

- Fail gracefully

- Facilitate reporting
    - Provide context: request url, response, etc.
    - Not everyone is a developer.
    - Not everyone is on a desktop device.

3 – Error handling

Something went wrong, but it's not your fault. Try again! **View details**

- Fail gracefully

- Facilitate reporting

- Beware of destructive operations
  - There will be bugs, better safe than sorry
  - It's better to duplicate data than deleting or overriding
  - PATCH instead of PUT

4 – Local-first
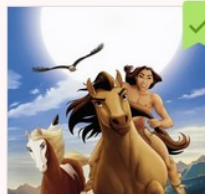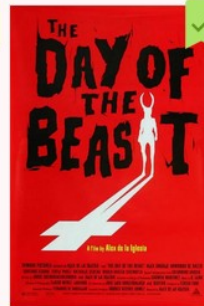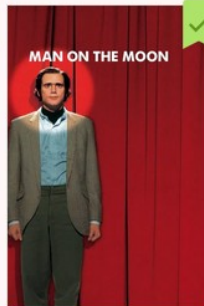
4 – Local-first

noeldemartin.com/solid-symposium-crdts
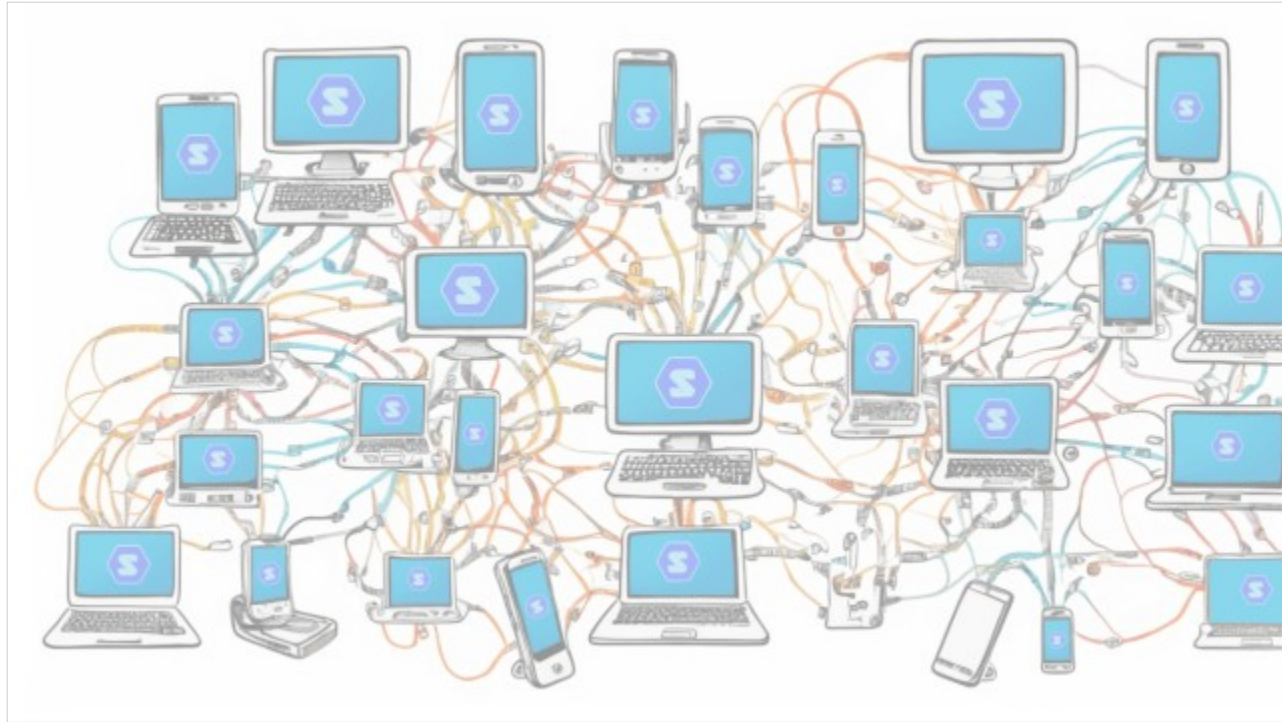
4 – Local-first

TLDR:

- Read inkandswitch.com/local-first/

Ink & Switch

Local-first software

You own your data, in spite of the cloud

4 – Local-first

TLDR:

- Read inkandswitch.com/local-first/

- Use vocab.noeldemartin.com/crdt/

```
@prefix schema: <https://schema.org/> .

@prefix crdt: <https://vocab.noeldemartin.com/crdt/> .

@prefix xsd: <http://www.w3.org/2001/XMLSchema#> .


<#it>

    a schema:Recipe;

    schema:name "Ramen".


<#it-metadata>

    a crdt:Metadata;

    crdt:resource <#it>;

    crdt:createdAt "2022-03-25T11:31:32.448Z"^^xsd:dateTime;

    crdt:updatedAt "2022-03-25T11:31:32.448Z"^^xsd:dateTime.


<#it-operation-1>

    a crdt:SetPropertyOperation ;

    crdt:resource <#it> ;

    crdt:date "2022-03-25T11:31:32.448Z"^^xsd:dateTime ;

    crdt:property schema:name ;

    crdt:value "Ramen".
```

4 – Local-first

TLDR:

- Read inkandswitch.com/local-first/

- Use vocab.noeldemartin.com/crdt/

- Give users control:

5 – Interoperability

noeldemartin.com/solid-world-2025

5 – Interoperability

TLDR:

– Use Type Indexes

```
@prefix solid: <http://www.w3.org/ns/solid/terms#> .

@prefix schema: <https://schema.org/> .


<> a solid:TypeIndex, solid:UnlistedDocument .


<#8478f713-4706-40b6-99bb-ba2e6fcf12c6>

    a solid:TypeRegistration ;

    solid:forClass schema:Action ;

    solid:instanceContainer </tasks/> .
```

5 – Interoperability

TLDR:

- Use Type Indexes

- Don't assume much about the data (follow your nose)

5 – Interoperability

TLDR:

- Use Type Indexes

- Don't assume much about the data (follow your nose)

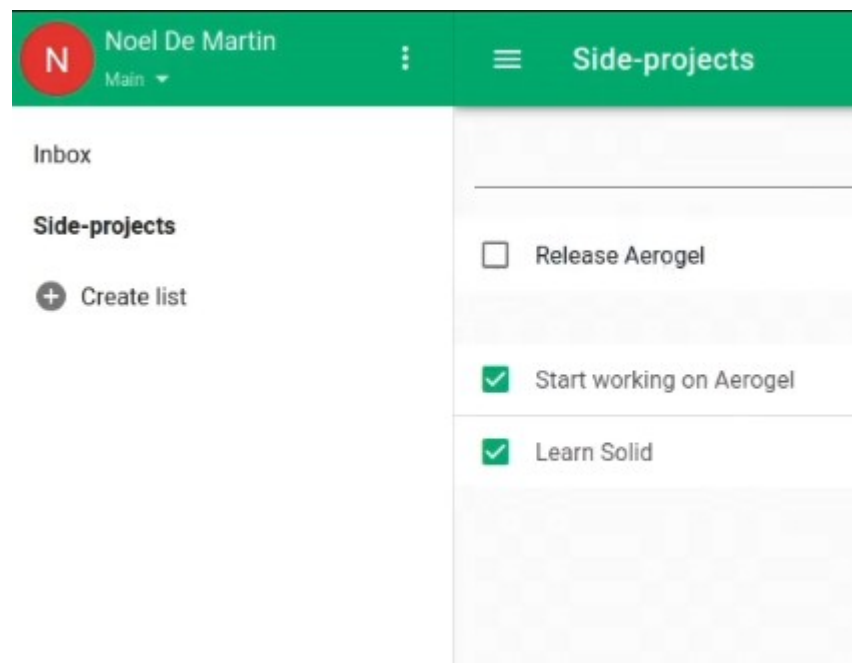- Use common ontologies, or mix multiple (see Bag of Chips)
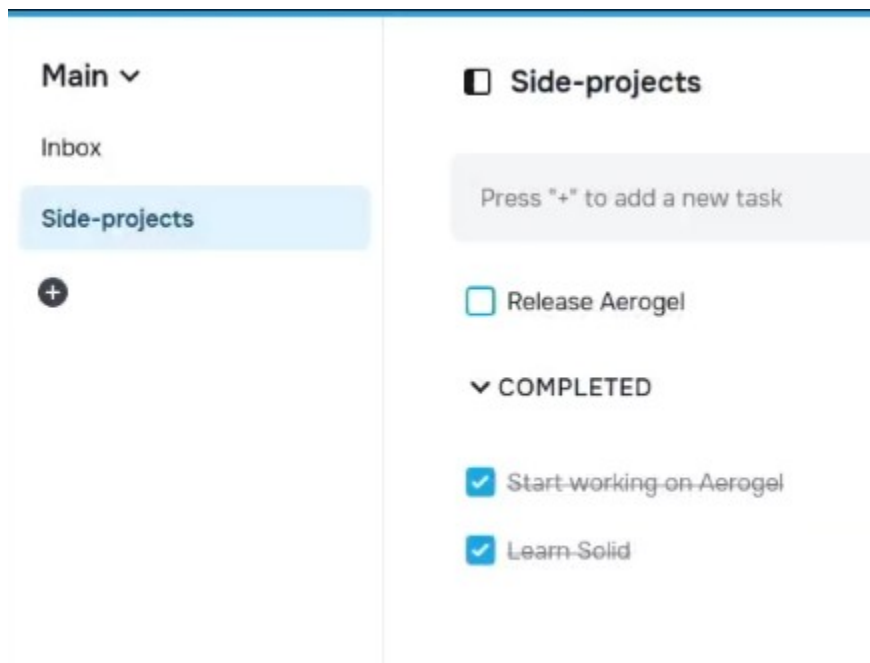
5 – Interoperability

TLDR:

- Use Type Indexes

- Don't assume much about the data (follow your nose)

- Use common ontologies, or mix multiple (see Bag of Chips)

- Decouple application code from data schema (ideally, support multiple)

5 – Interoperability

Rebuilding Solid Focus with Aerogel | Interoperability

5 – Interoperability

TLDR:

- Use Type Indexes

- Don't assume much about the data (follow your nose)

- Use common ontologies, or mix multiple (see Bag of Chips)

- Decouple application code from data schema (ideally, support multiple)

- Test with different servers

5 – Interoperability

ramen.noeldemartin.com

| Solid Server	Status	Last tested	Comments
LSS	⚠️ Partially working	09/04/2025	Private read/write operations mostly work, but it doesn't support any of the authorization schemes (WAC, ACP, etc).
iGrant.io	👍 Working	27/02/2025	
ActivityPods 2.0.4	⚠️ Partially working	21/12/2024	The server implements a subset of the Solid Specification, and requires using SAI and a server-side component. Learn more about it in my full ActivityPods Compatibility Report.
TrinPod	👍 Working	30/01/2024	
NSS 5.7.7	👍 Working	08/12/2023	
CSS 7.0.1	👍 Working	08/12/2023	
ESS	👍 Working	08/12/2023	
use.id	⛔ Not working	08/12/2023	The server doesn't expose any writable profiles (nor extended profiles), so the app fails trying to create a type index.
PHP Solid Server	⚠️ Partially working	28/12/2020	The server requires multiple fixes to work properly, reported here: pdsinterop/php-solid-server#42.

Key Takeaways

1) The protocol is very simple

2) Log in with Solid

3) Error handling

4) Local-first

5) Interoperability

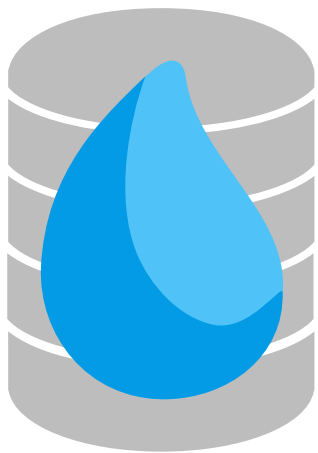"To cut down a tree in five minutes, spend three minutes sharpening your axe"

My tools
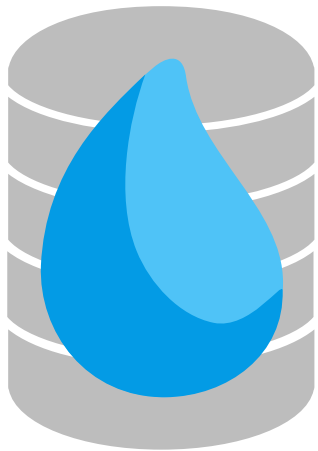
soukai.js.org

aerogel.js.org

My tools

soukai.js.org

Framework agnostic

TypeScript

Models
(Active Record)

Engines
(Solid POD, IndexedDB, ...)

Interoperability
(Type Indexes, Schemas, RDF aliases)

Local-first

noeldemartin.com/solid-symposium-2025

My tools

Starter template
(VueJS + TailwindCSS + Soukai)

UI Components
(Login, local-first, ...)

Authentication

Error handling

Easy local-first

Aerogel
The Lightest Solid

Work in Progress!

aerogel.js.org

noeldemartin.com/solid-symposium-2025

My tools

noeldemartin.com/solid-symposium-dx

Thoughts on
Solid Developer Experience

2nd Solid Symposium
May 2nd 2024, Leuven

The future of building Solid Apps

noeldemartin.com/solid-symposium-2025
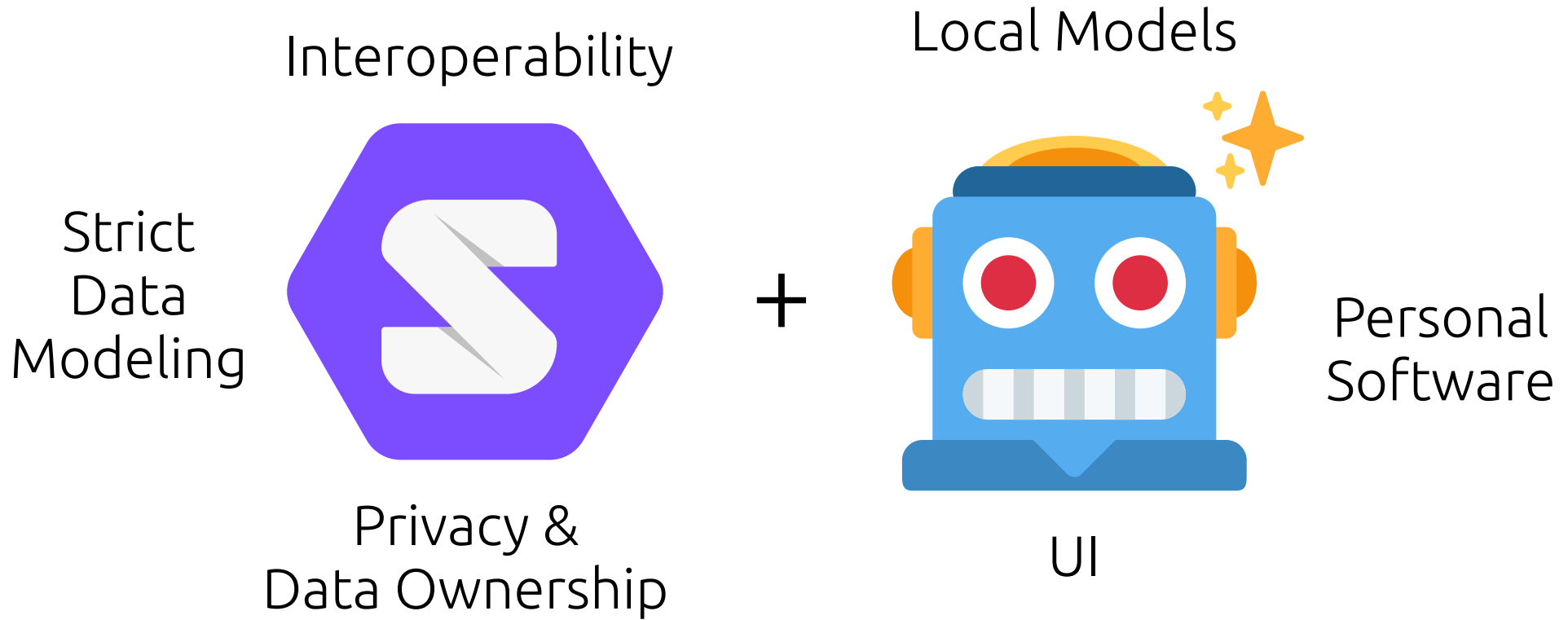
Welcome to the AI age

Welcome to the AI age

- Generative AI

- Vibe Coding

- AI Agents

- … but where are all the apps!?

Solid to the rescue?

Interoperability

Local Models

Strict
Data
Modeling

+

Personal
Software

Privacy &
Data Ownership

UI

noeldemartin.com/solid-symposium-2025

Home-Cooked Software and Barefoot Developers

maggieappleton.com/home-cooked-software

Let's make more apps!

Let's make more apps!

github.com/NoelDeMartin/calories-tracker

Calories Tracker
Today's meals

Calories   350 / 2000 kcal

Protein   12 / 150 g

Carbs   65 / 200 g

Fat   6 / 65 g

Ramen
350 kcal · 12g protein · 65g carbs · 6g fat
10:26:43 PM

⊕ Log meal

Let's make more apps!

Joseph Guillaume's Pantry app:

jg10.solidcommunity.net/pantry/blog/home.html

Pantry app blog

I'm working on a pantry app. I want to use recipes compatible with Umai, but connected with a record of what ingredients are in the house. I have a more or less functional version that I've started using in my home. It's rough around the edges and I keep thinking of new functionality that would improve its usability. But that's a key part of why I've built it the way I have - the idea of enabling user control over both their data and the interfaces used to interact with it. Rather than simply sharing my current version, this blog will break it down and built it back up, step by step.

🛒 ❄ 📖   Logout

🔍 olidcommunity.net/private/cookbook/   ✕

Baked Creamy Pumpkin Risotto

▶
Arborio rice →   Low ▾

▶
Pumpkin →   Some ▾

Baked Macaroni Cheese with Chicken & BROCCOLI

▼
Flour →   Some ▾

Add to shopping list

Save

▶
Broccoli →   Some ▾

▶
Chicken →   Some ▾

See you online!

Follow my work at
noeldemartin.com/now

You can also find me on the fediverse,

Bluesky, Twitter/X, etc.

⏳ 🧠 🔥