Interoperable Serendipity

Noel De Martin @ Solid World
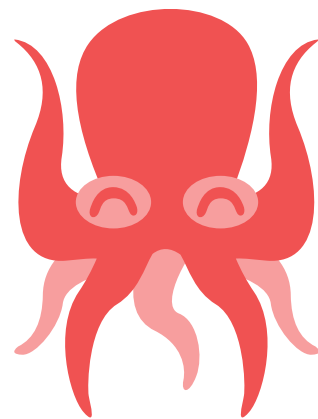
Hello, my name is Noel!

I've built a few Solid Apps...
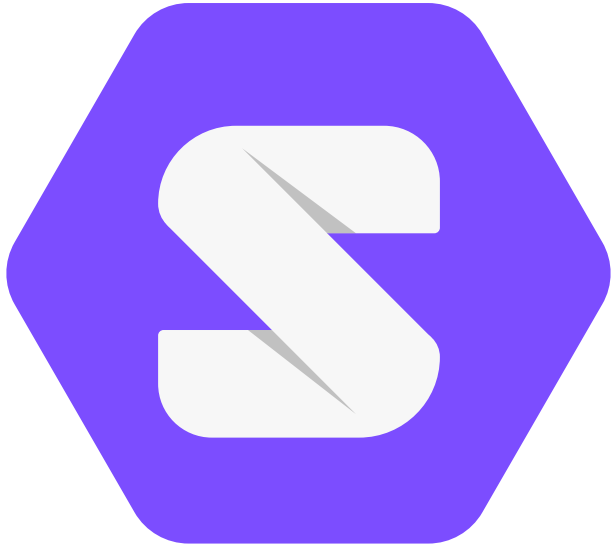
Focus

Media Kraken

Umai

Find them at noeldemartin.com/projects

Interoperable?
Serendipity?
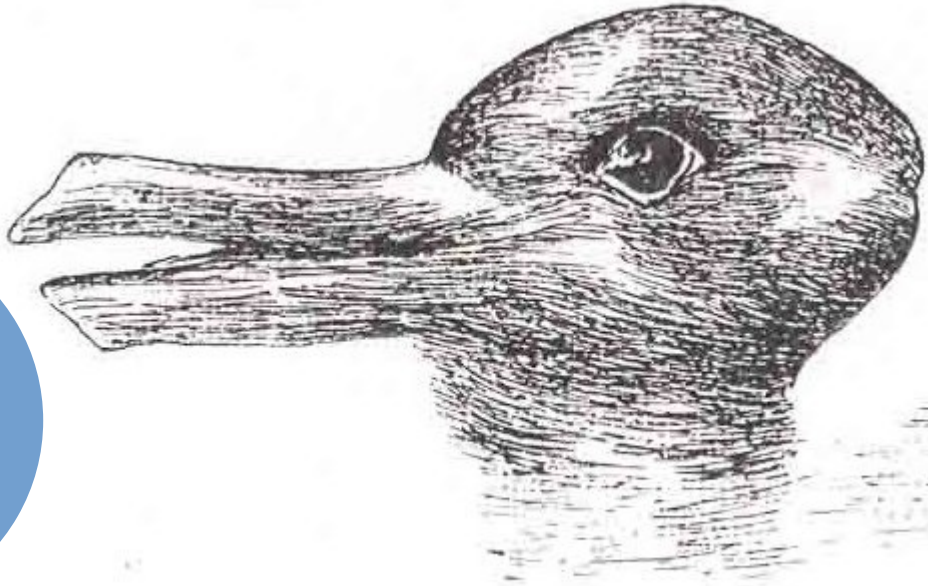
noeldemartin.com/solid-world-2025

What do you see?

Rabbit

Duck

noeldemartin.com/solid-world-2025

Why Solid?

Privacy

Own Your Network

Own Your Data

Interoperability

...

Interoperability

🤝

Interoperability

"**There is no killer app**, and it's also not desirable [...] We need **an interoperable app ecosystem** that is aware of all relevant knowledge and the context we are currently in."

— Angelo Veltens (A Vision for Personal Knowledge Graphs)

Interoperability

"Interoperability is a characteristic of a product or system to work with other products or systems."

— [Wikipedia]

Examples of interoperability

Email

🅶 @gmail.com

Ⓜ @proton.me

HEY @hey.com

...

RSS

Apple Podcasts

Pocket Casts

AntennaPod

...

The Web

Google Chrome

Safari

Firefox

...

The future in a Solid World

Apps

- @gmail.com
- @proton.me
- @hey.com
- Apple Podcasts
- Pocket Casts
- AntennaPod
- Google Chrome
- Safari
- Firefox

Interoperability

Interoperability

A taxonomy of interoperability

By Cory Doctorow from [Interoperability: Fix the Internet, Not the Tech Companies](#)
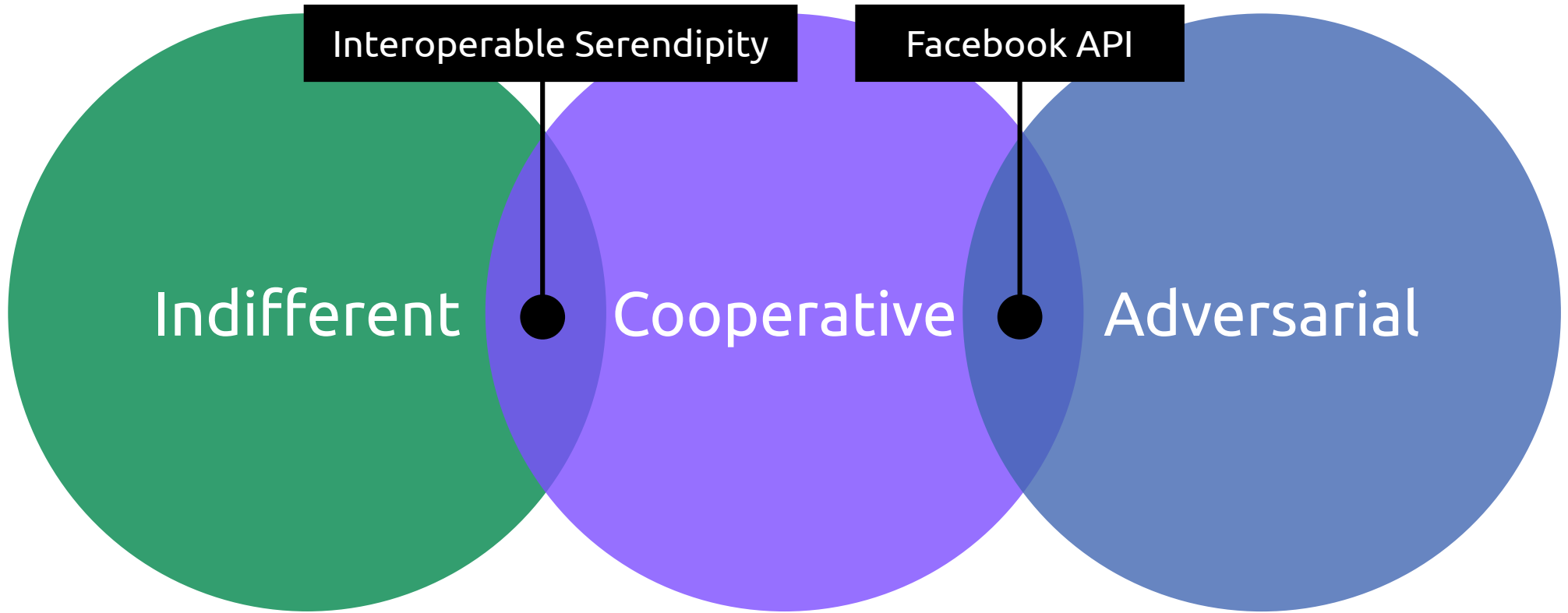
Indifferent

Cooperative

Adversarial

A taxonomy of interoperability

Interoperable Serendipity

Facebook API

Indifferent

Cooperative

Adversarial

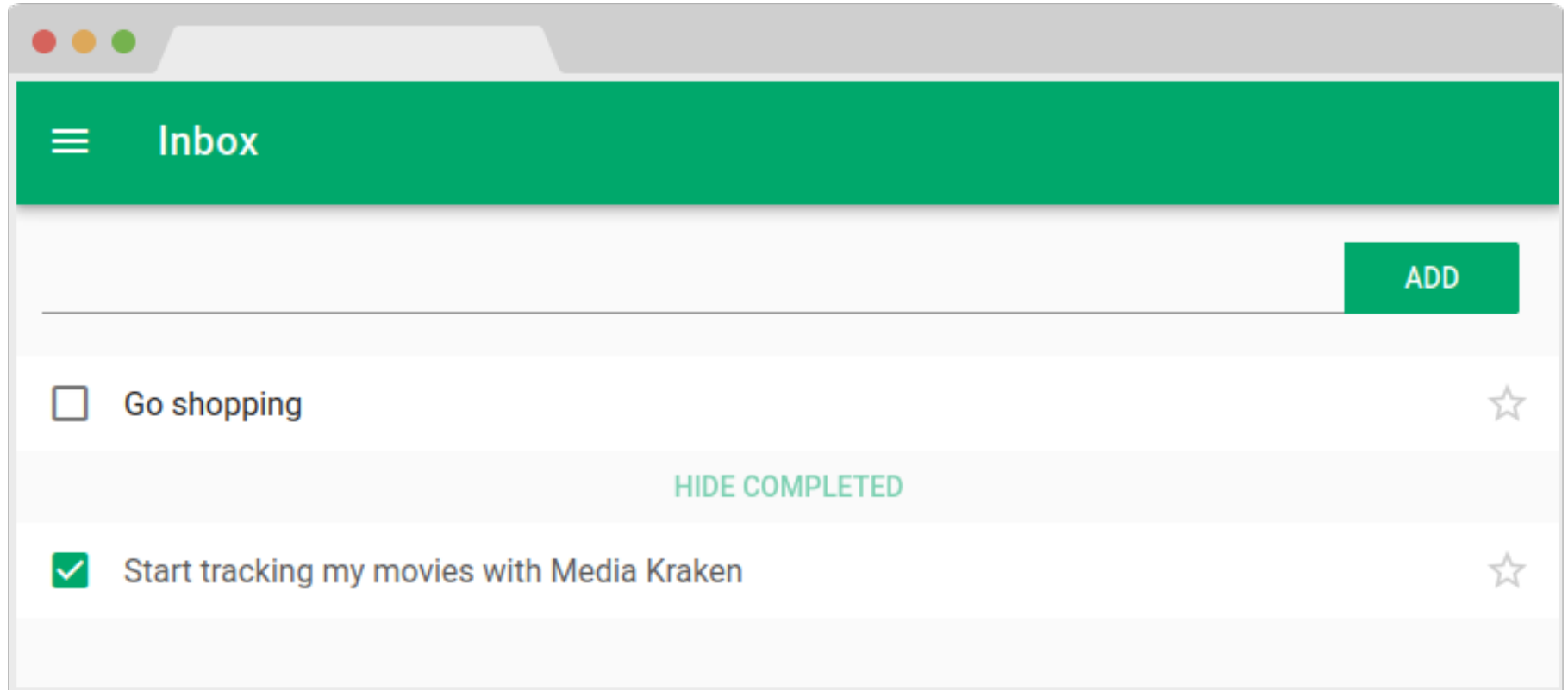noeldemartin.com/solid-world-2025

Cooperative interoperability

- Level 1: Obfuscated interoperability
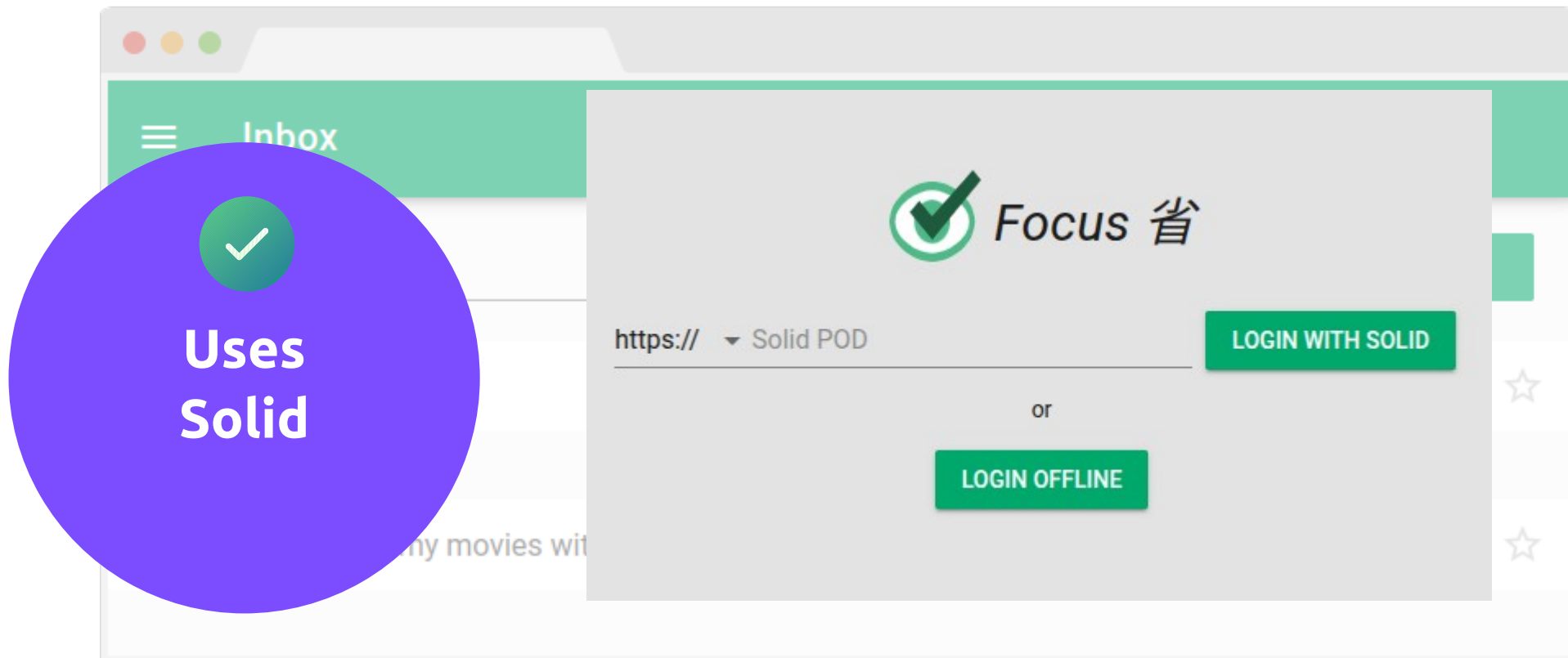- Level 2: **???**
- Level 3: **???**
- Level 4: **???**

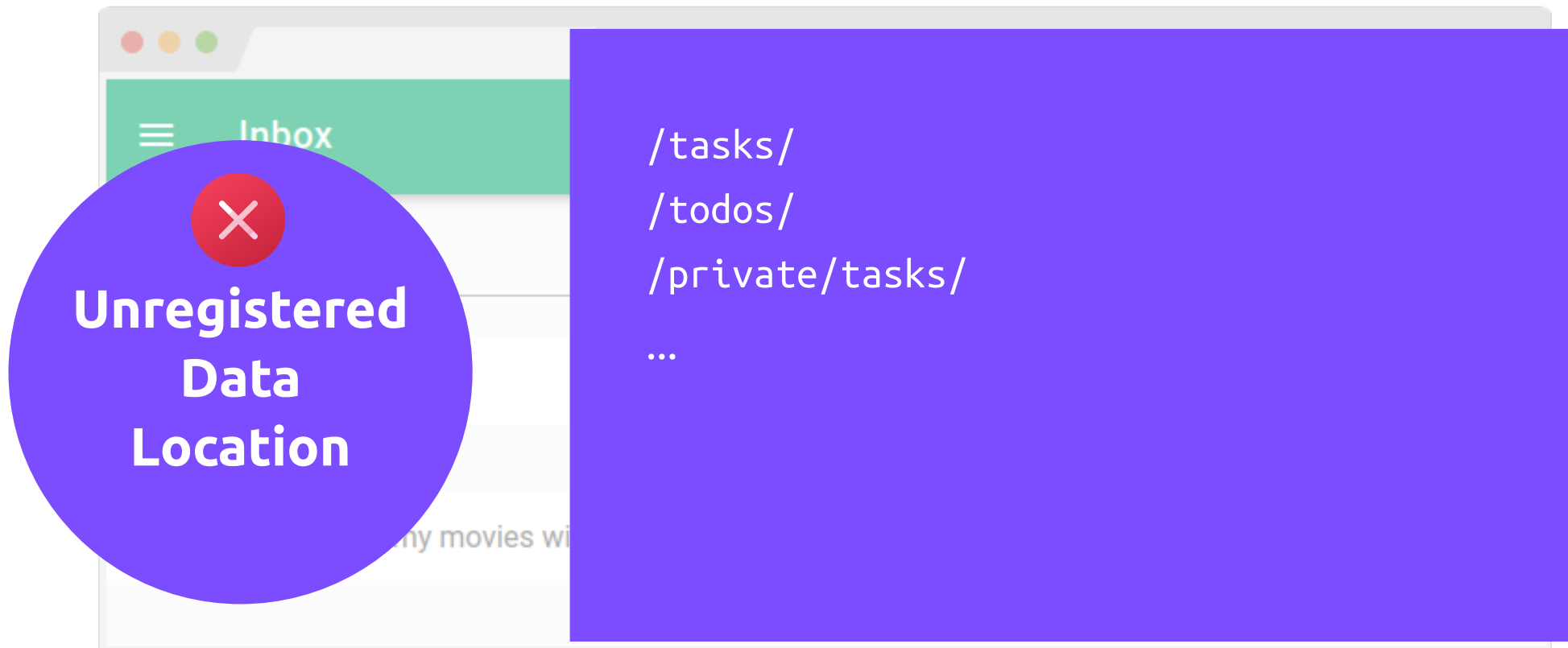# Obfuscated interoperability

Solid Focus (my first app!)

Obfuscated interoperability

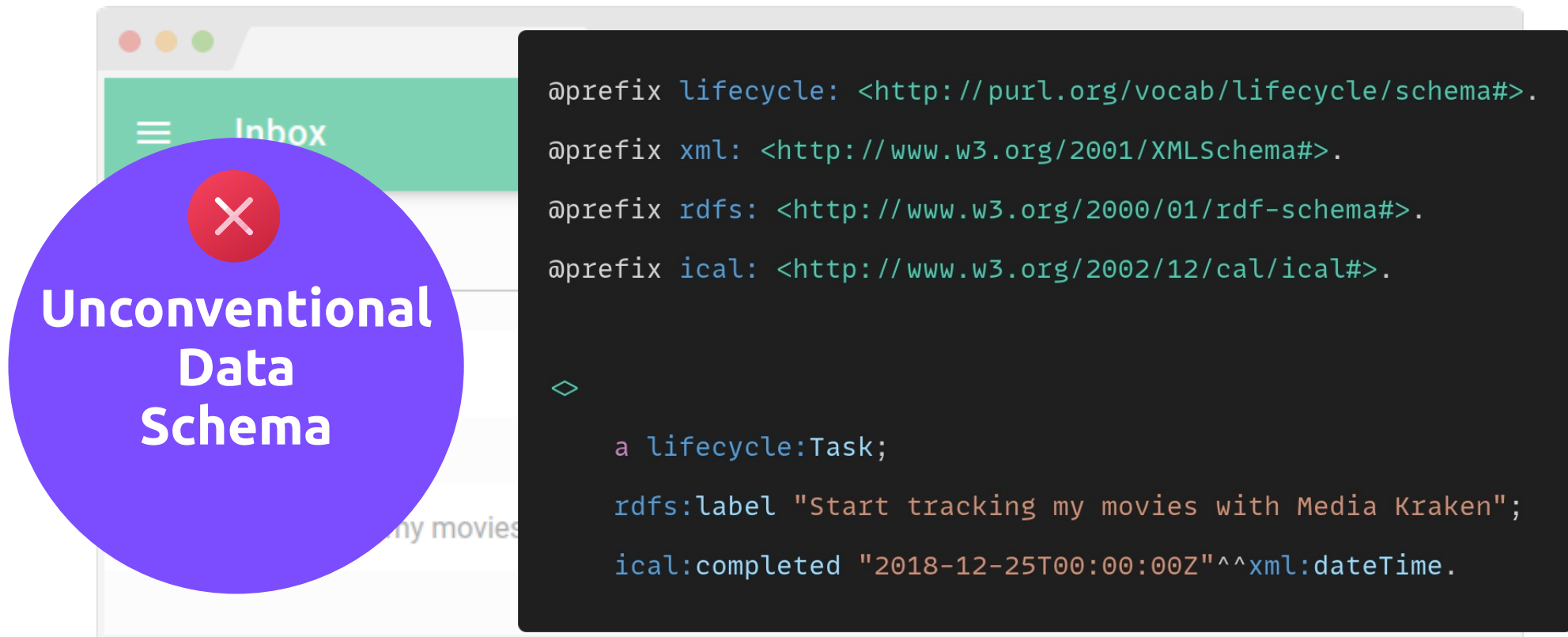Solid Focus (my first app!)

Uses Solid

Focus 省

https:// ▾ Solid POD

LOGIN WITH SOLID

or

LOGIN OFFLINE

Obfuscated interoperability

Solid Focus (my first app!)

Unregistered Data Location

/tasks/

/todos/

/private/tasks/

…

Obfuscated interoperability

Solid Focus (my first app!)

Unconventional Data Schema

```
@prefix lifecycle: <http://purl.org/vocab/lifecycle/schema#>.

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

@prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#>.

@prefix ical: <http://www.w3.org/2002/12/cal/ical#>.


<>

    a lifecycle:Task;

    rdfs:label "Start tracking my movies with Media Kraken";

    ical:completed "2018-12-25T00:00:00Z"^^xml:dateTime.
```
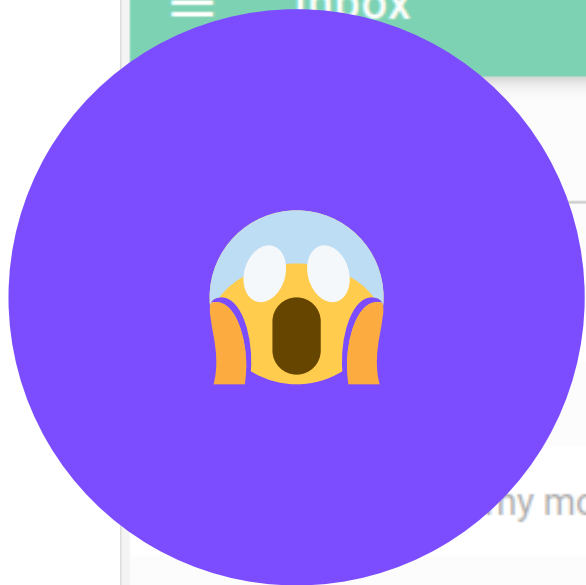
Inbox

my movies

noeldemartin.com/solid-world-2025

Obfuscated interoperability

Solid Focus (my first app!)


```
@prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#>.

<>

    rdfs:label "{\"name\":\"

Start tracking my movies with Media Kraken\",\"

completedAt\":\"2018-12-25T00:00:00Z\"}".
```
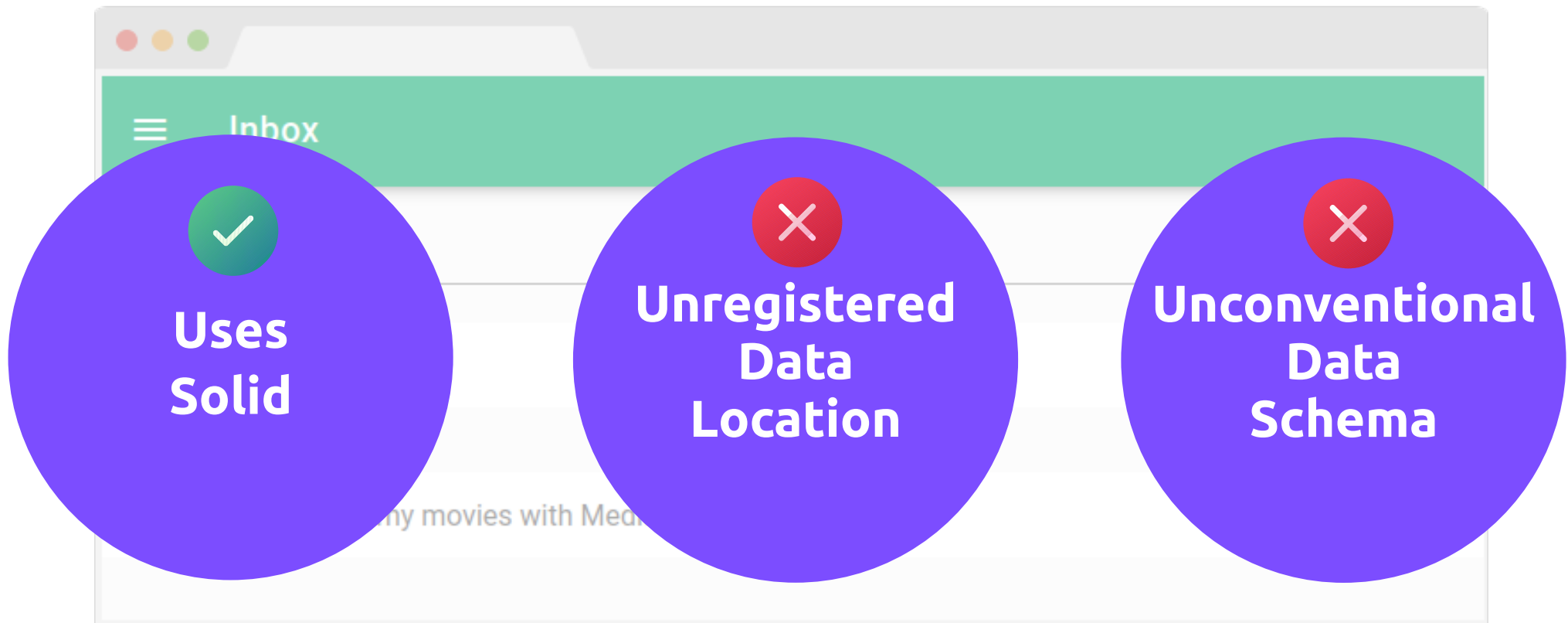
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Obfuscated interoperability

Solid Focus (my first app!)

Uses Solid ✓

Unregistered Data Location ✗

Unconventional Data Schema ✗

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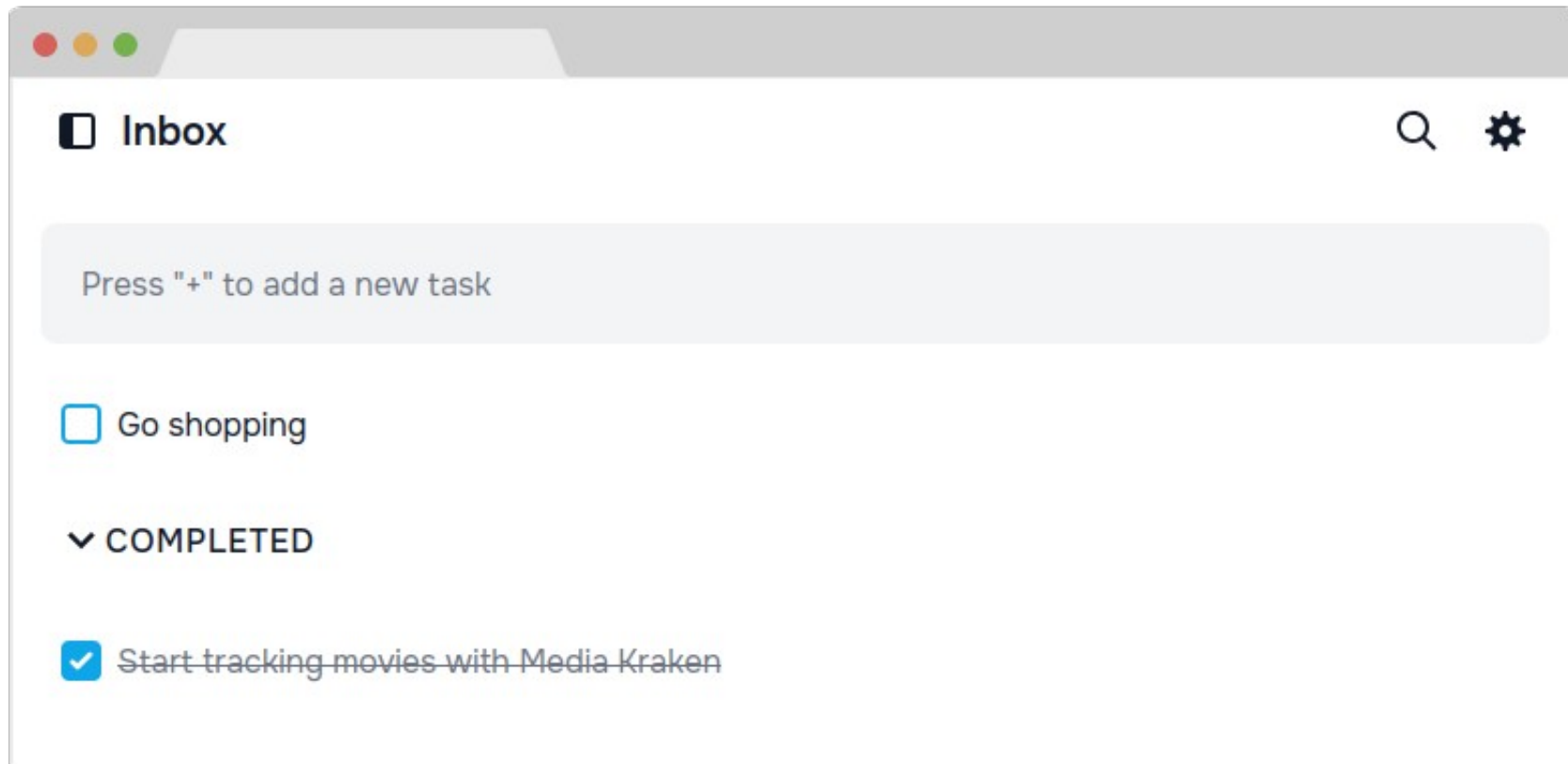# Cooperative interoperability

- Level 1: Obfuscated interoperability

- Level 2: Intentional interoperability

- Level 3: **???**

- Level 4: **???**
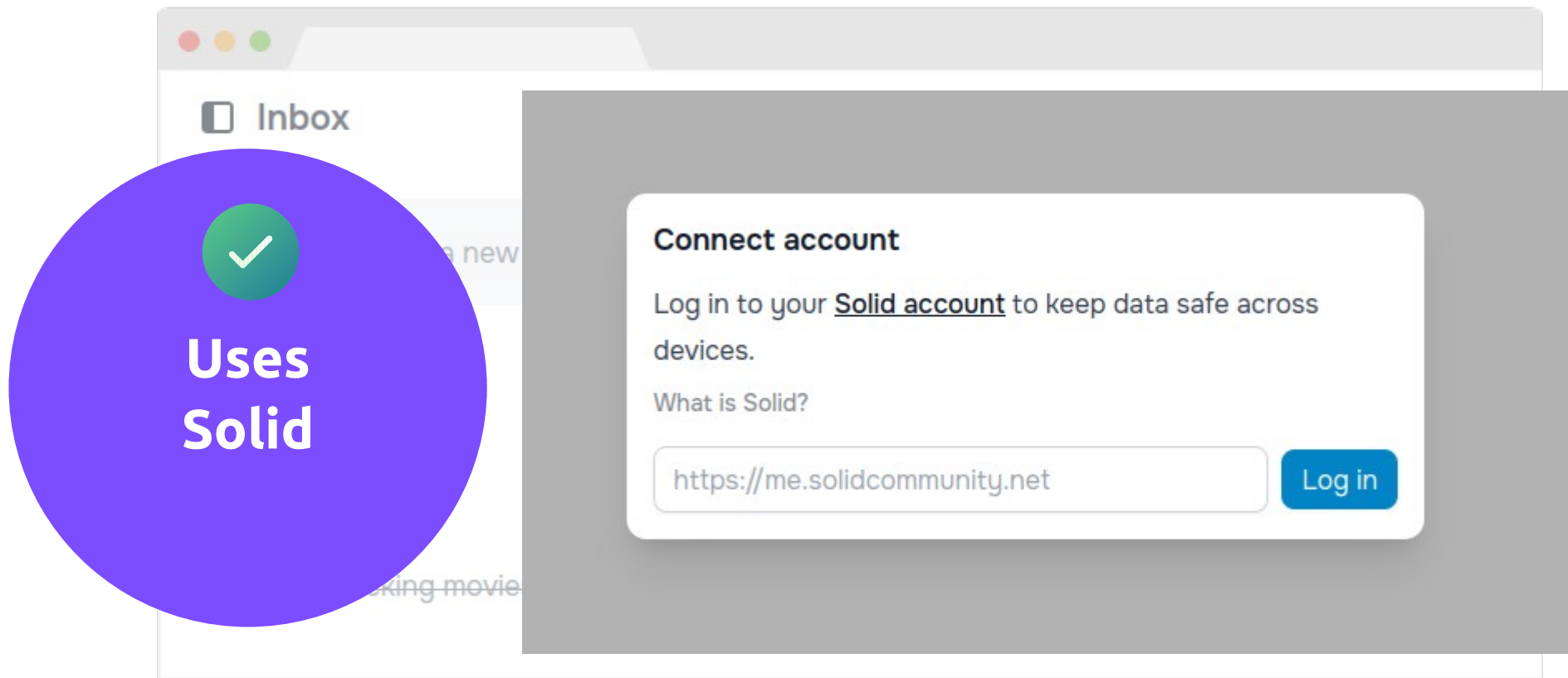
Intentional interoperability

Focus v2

Intentional interoperability

Focus v2

Uses Solid ✓

Connect account

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

What is Solid?

https://me.solidcommunity.net   Log in

Intentional interoperability

Focus v2

Registered Data Location

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

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

@prefix ical: <http://www.w3.org/2002/12/cal/ical#> .


<> a solid:TypeIndex, solid:UnlistedDocument.


<#tasks>

    a solid:TypeRegistration;

    solid:forClass schema:Action, ical:Vtodo;

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

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Intentional interoperability

Focus v2

"Conventional" Data Schema

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

@prefix ical: <http://www.w3.org/2002/12/cal/ical#> .

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


<#it>

    a schema:Action, ical:Vtodo ;

    schema:name "Start tracking my movies with Media Kraken" ;

    ical:summary  "Start tracking my movies with Media Kraken" ;

    ical:completed "2018-12-25T00:00:00Z"^^xml:dateTime.
```
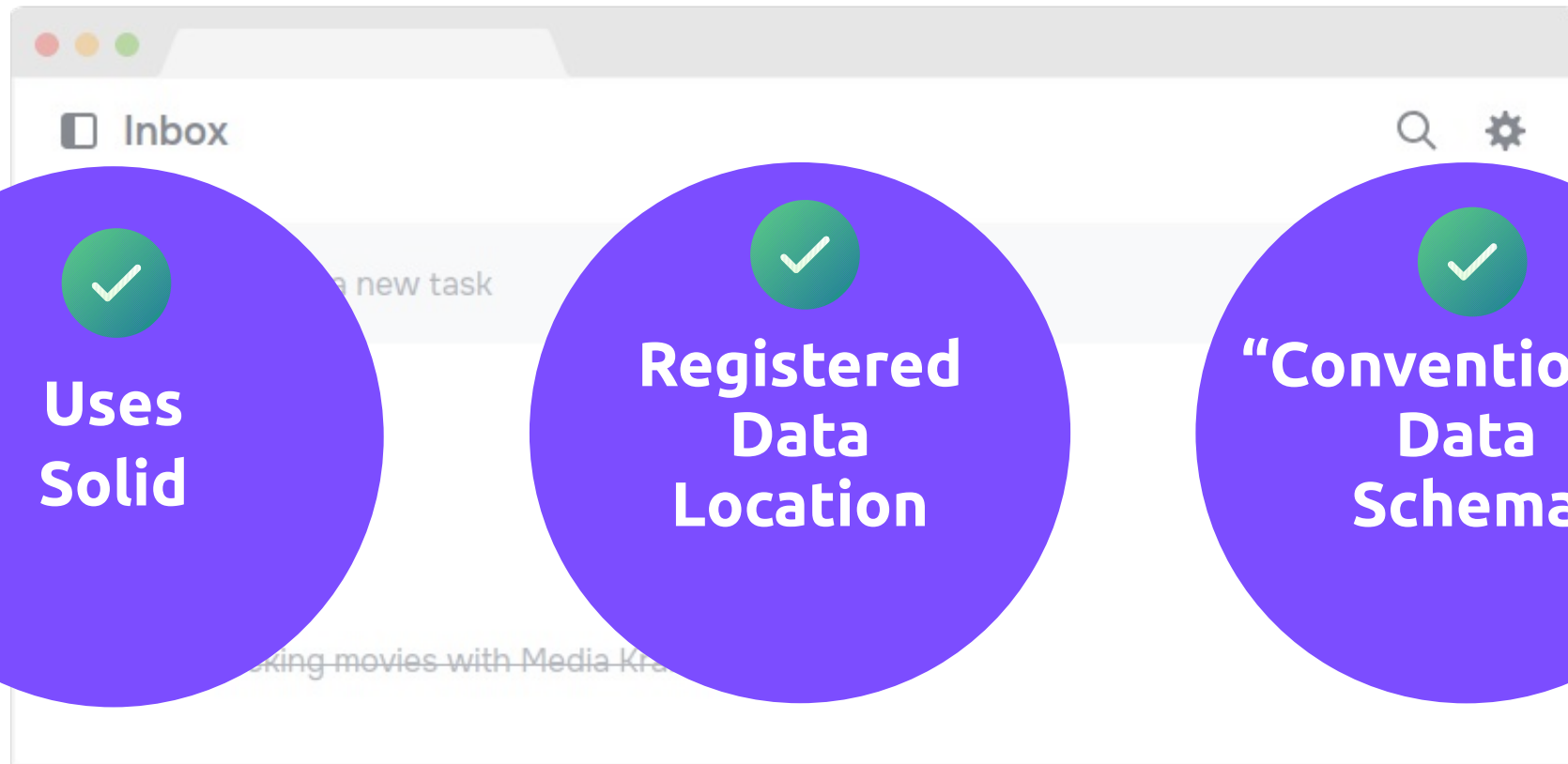
noeldemartin.com/solid-world-2025

Intentional interoperability

Focus v2

Uses Solid

Registered Data Location

"Conventional" Data Schema

noeldemartin.com/solid-world-2025

Intentional interoperability

Self-describing Data
+
Solid Protocol

VS

Facebook API

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Cooperative interoperability

- Level 1: Obfuscated interoperability

- Level 2: Intentional interoperability

- Level 3: Lens-based interoperability

- Level 4: ███████████ **???** ███████████

Lens-based interoperability

Alice

Bob

Lens-based interoperability

Alice's Task Manager

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

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


<#it>
    a schema:Task ,
    schema:name "Go shopping" ,
    schema:actionStatus
        schema:CompletedActionStatus .
```

Bob's Task Manager

```
@prefix ical: <http://www.w3.org/2002/12/cal/ical#> .

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


<#it>
    a ical:Vtodo ;
    ical:summary "Go shopping" ;
    ical:completed
        "2018-12-25T00:00:00Z"^^xml:dateTime .
```
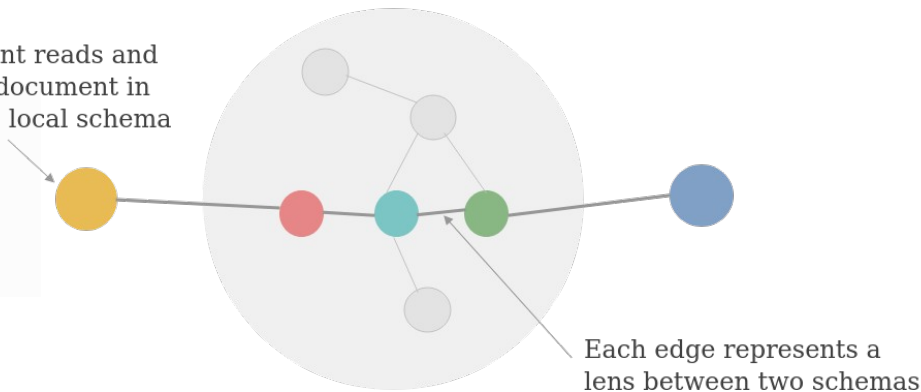
noeldemartin.com/solid-world-2025

Lens-based interoperability

Project Cambria
Translate your data with lenses

inkandswitch.com/cambria/

Each client reads and writes a document in its native local schema

Each edge represents a lens between two schemas

Shaping Linked Data apps

Decentralized apps will need a lot of flexibility, which they will gain through data shapes.

ruben.verborgh.org/blog/2019/06/17/shaping-linked-data-apps/
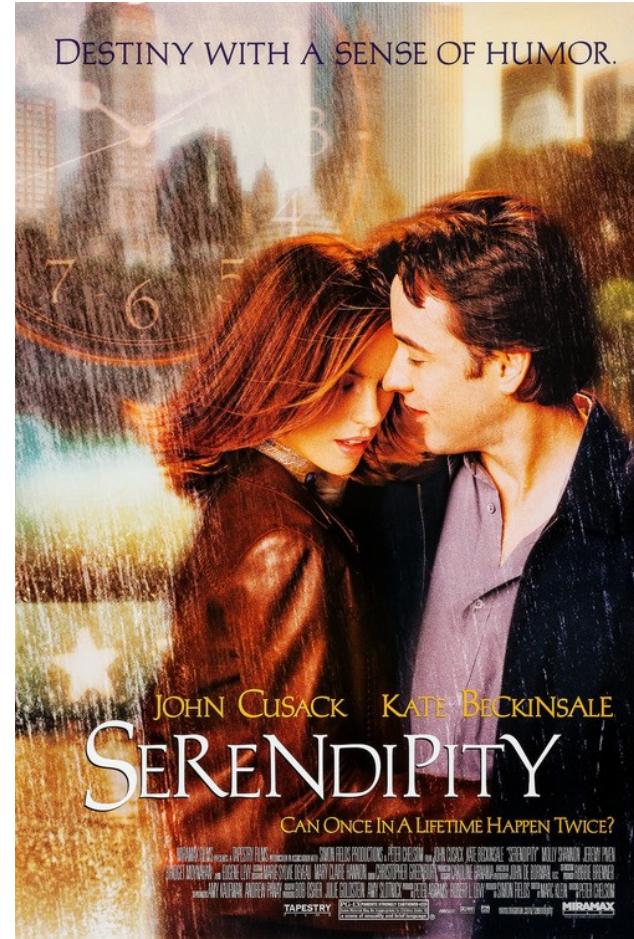
Cooperative interoperability

- Level 1: Obfuscated interoperability

- Level 2: Intentional interoperability

- Level 3: Lens-based interoperability

- Level 4: *Interoperable Serendipity*✨
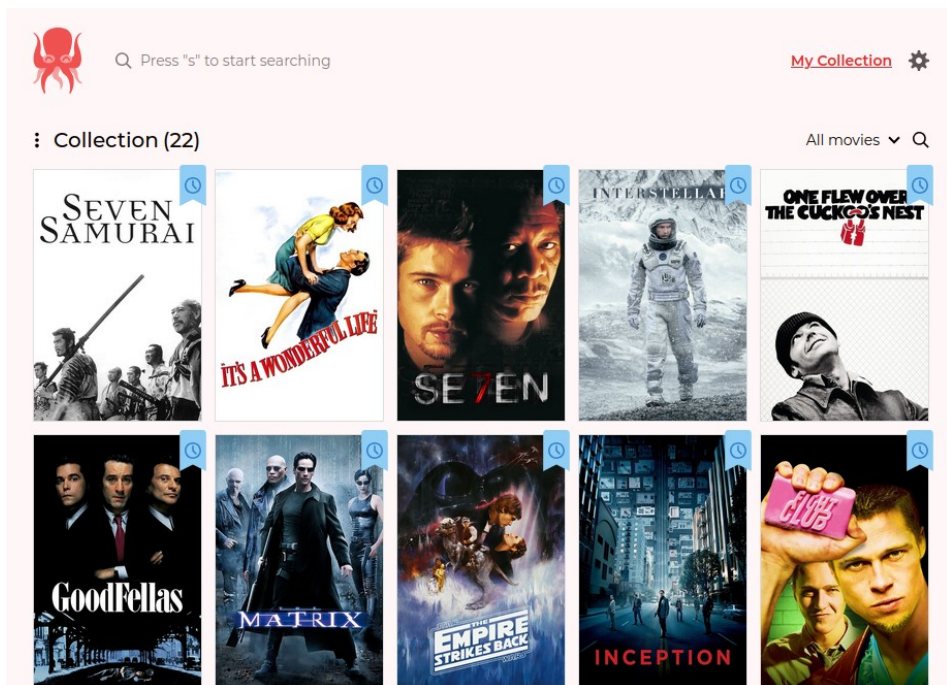
Serendipity?

😅 Not that one...

Interoperable Serendipity

"Interoperable Serendipity happens when apps built by different developers work together without explicit coordination."
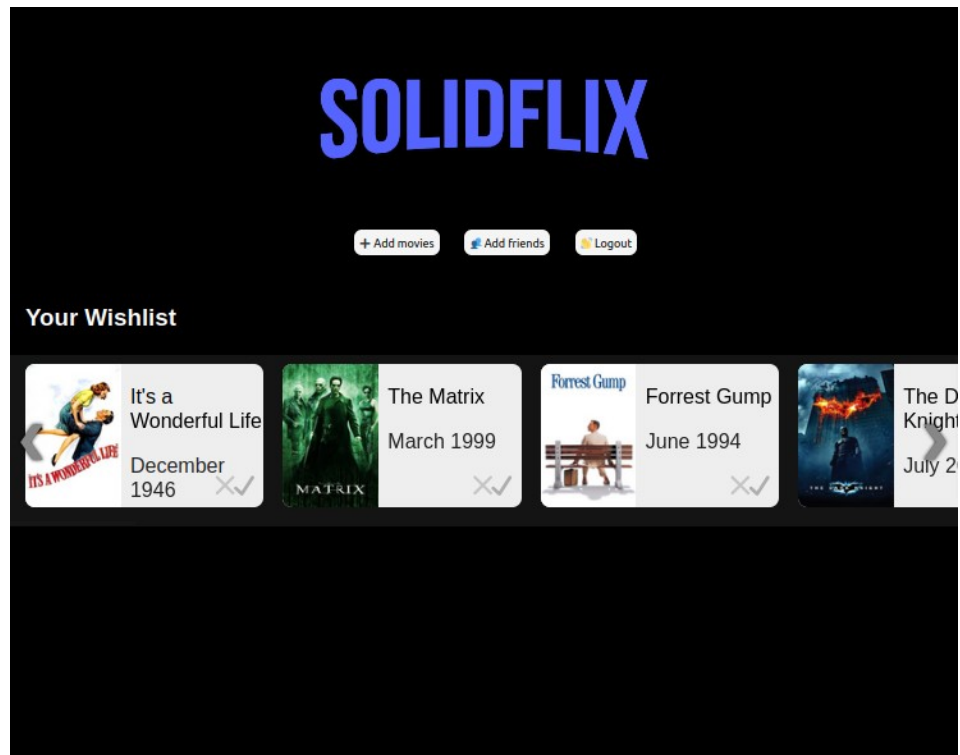
— [Noel De Martin](#)

Interoperable Serendipity

Media Kraken
(presented @ Solid World February 2021)

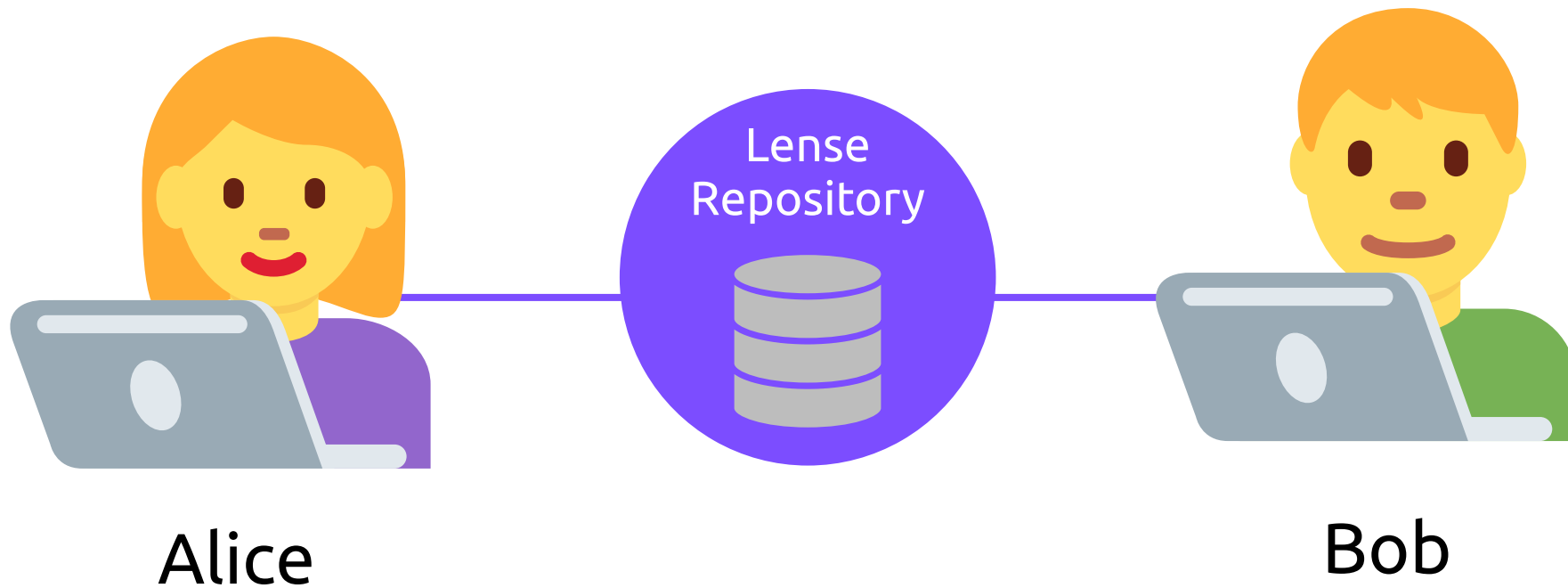## Solidflix
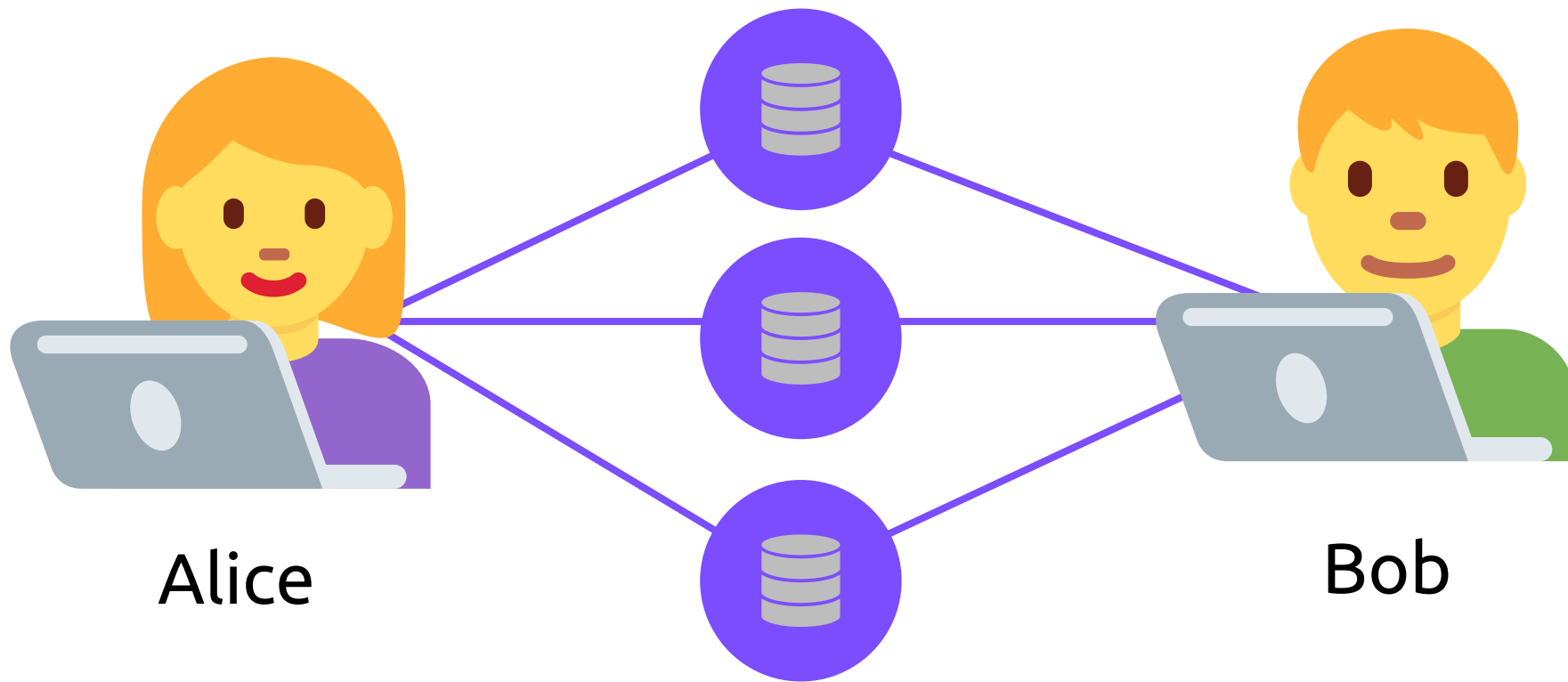(presented @ Solid World December 2022)

Interoperable Serendipity

Alice

Bob

Interoperable Serendipity

Using lense repositories

Alice

Lense Repository

Bob

Interoperable Serendipity

Using lense repositories

Alice

Bob

Interoperable Serendipity

Using lense repositories

- shaperepo.com

- pdsinterop.org/conventions

- github.com/solid/shapes

- ...

Join tomorrow's meeting about shape repo(s) (at 3pm UTC):
forum.solidproject.org/t/solid-stm-about-shape-repo-s

Interoperable Serendipity

Using browser extensions

Inbox

Press "+" to add a new task

☐ Go shopping

∨ COMPLETED

☑ ~~Start tracking movies with Media Kraken~~

Interoperable Serendipity

Using browser extensions

Interoperable Serendipity

Using browser extensions

Interoperable Serendipity

Using browser extensions

name	Completed
Go shopping	null
Start tracking movies with Media Kraken	

Data Preview ✕

Try yourself at webscraper.io

Interoperable Serendipity
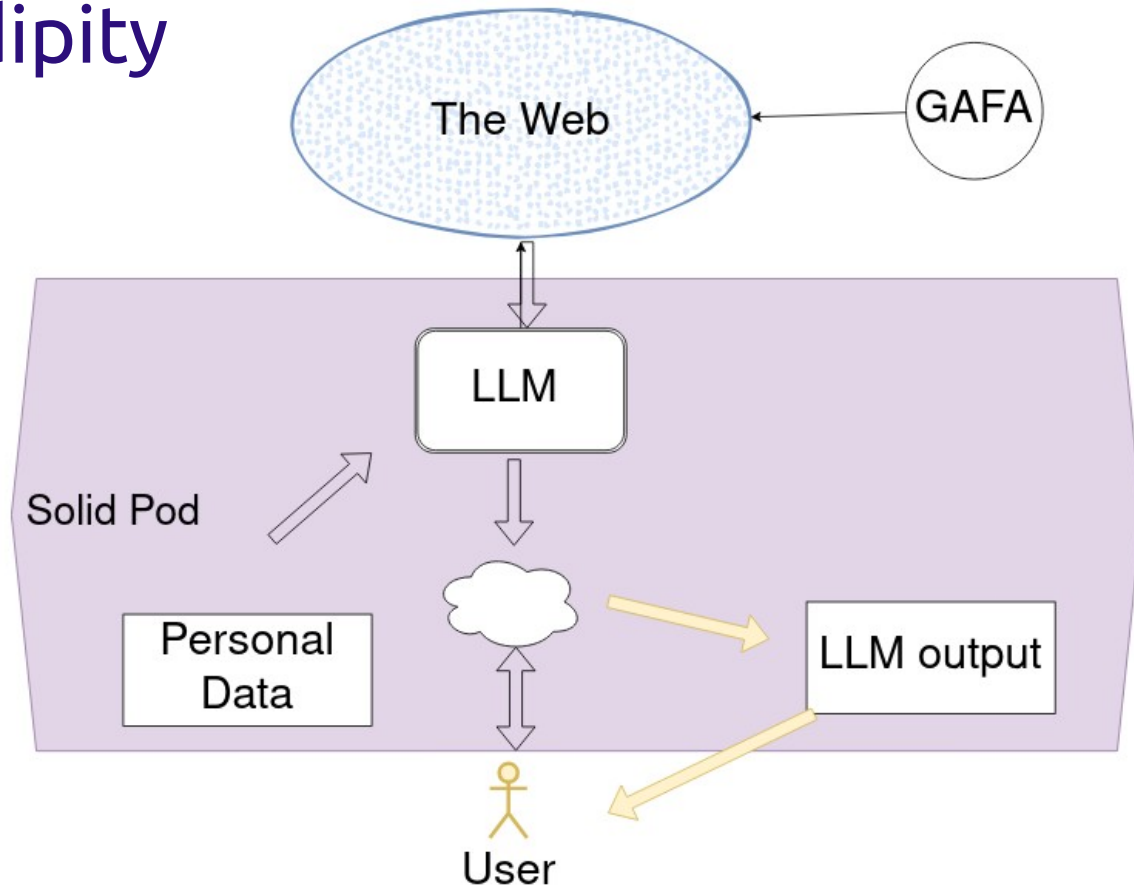
Using AI

Task from Alice's app

Task from Bob's app

Charlie AI

Lense in your POD

Interoperable Serendipity

Using AI

See:
- Charlie works for Bob
- Tim Berners-Lee @ WeAreDevelopers World Congress 2023

Interoperable Serendipity

- Using lense repositories

- Using browser extensions

- Using AI

- ...

Interoperable Serendipity ✨

See you online!

⏳ 🧠 🔥

Follow my work:

- noeldemartin.com/now
- aerogel.js.org

You can also find me on the fediverse, Bluesky, Twitter/X, etc.