Personal Data Management Tool for a Decentralized Web

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We have lost control over our personal data

Scattered all over the web

Lack of control over how and what our data is used for

Data silos and lock-ins
“Solid has become the vital next layer of the web stack.”

Sir Tim Berners-Lee: Inventor of the World Wide Web, Creator of the Solid platform, CTO & Co-Founder of Inrupt
Personal Online Datastores (PODs)

Stores all kinds of data

Multiple applications can access same data through POD
**Centralized:** single app and backend

- Backend A (Google Cloud)
- App A (Spotify)

- Backend B (AWS)
- App B (Apple Music)

**Decentralized:** multiple apps and backends

- App A (Spotify)
- App B (Apple Music)

Gopika’s POD
SLOW ADOPTION
POOR USABILITY
TECHNICAL AUDIENCE
Why PodBox?

PodBox. 2024

PodBox

Dropbox 2007
PodBox Demo

- POD Interfacing
- Interoperability
- Access Controls
Research & Design

Usability testing, expert interviews, desk research
Before PodBox, managing data access controls with a POD manager required 3 platforms.
How might we improve the POD management experience?
Process

Usability Testing
- 4 participants in MIMS
- Needfinding
- Complete user flow

Expert Interviews
- Interviews with Solid W3C Community Group leaders and Solid app developers

Desk Research
- Literature review, community forums
Unified Functional Experience

Completing key tasks requires users to switch between multiple platforms, causing confusion.

“I didn’t know where to look for things. I was lost and that sums up most of it.”
Educational Onboarding

Users lack understanding of key terms, given that it is a novel technology

“It’s hard to understand when it uses big words, which makes me feel like a caveman.”
App-First Design

User mental framework of data is tied to apps

“I know that the data from this app lives in this place. I would prefer that it’s just presented to me upfront rather than just being so deep in there.”
Informational Nudges

Users don't understand access control implications or what information was important for a given task.

“I don't know what this means to me right now. I don't know what this part is gonna do, so I feel very lost right now.”
Technical Architecture

Application architecture, Linked-Data
Solid decouples identity, data, and the application

Roles typically all played by a single platform, which limit data portability and lock-in users to ecosystems that have access to data.
Interoperability and portability via data structure

PODs store data in 'structured' formats such as RDF, contrasting against the use of more typical table (relational database) structures.

Source: RDF 1.1 Primer
Interoperability and portability via data structure

PODs store data in 'structured' formats such as RDF, contrasting against the use of more typical table (relational database) structures.
Public RDF resource for Solid Apps in Podbox

Our App Library fetches its app library information from a public RDF document hosted on my POD, with public read access.
So, what’s next?
Thank you!
Your POD Provider

Your POD is hosted by a third party provider in their cloud. Much like Google Cloud Platform or Apple iCloud, there are different options to choose from.

Your POD

Your data is stored securely in your Personal Online Data store (POD).
**Centralized:** single app and backend

- Backend A (Google Cloud)
  - App A (Spotify)
- Backend B (AWS)
  - App B (Apple Music)

**Decentralized:** multiple apps and backends

- POD A
  - App A (Spotify)
- POD B
  - App B (Apple Music)
- POD C
- POD D
Educational Onboarding vs OhMyPod

Welcome, https://miagsm.solidweb.org/profile/card#me

This application is being developed to improve the user experience so it is easier and clearer for each user to interact with its POD.

The application is being developed by Ashil Camrode Arnatada, in collaboration with empathy.co, the eCommerce Search behind top world brands as Kroger, Carrefour or the Inditex Group. The main objectives of this application are the following:

- **Improve user experience** for the moment, interacting with a POD is complex and difficult if you're not used to the computer science world. We're trying to make it easier for the users to manage the data they want to store in their POD, because the first step to gain users, is to make their life easier.
- **Improve security and privacy.** With the actual way to manage the POD, there are some critical security flaws, for example, granting access to a user so he can deny you access to your own POD; this should not be allowed.
- **Build the starting point a prototype of a search engine based on the SOLID platform/principles.**

The application is continuously evolving: Different aspects are changing, such as the user interface, and application functionalities are being added and edited.
App-First Design vs OhMyPod
Interoperability and portability via data structure

PODs store data in 'structured' formats such as RDF or Linked-Data, contrasting against the use of more typical table like structures.
Economic Benefits

- Cost effective development because of reusable backend
- No cloud cost, can still acquire transactional data, no data security burdens.
- All of user data at one place unlocks great benefits for insights
Government adoption

Committed to a digital innovation economy in Flanders, built on Solid

Inrupt and the Government of Flanders lay out a vision of a Flemish digital economy built on Solid.

John Bruce, Inrupt CEO and Co-founder    Sir Tim Berners-Lee, Inrupt CTO and Co-founder

NHS data: Can web creator Sir Tim Berners-Lee fix it?

9 November 2020
By Rory Cellan-Jones, Technology correspondent
Deblackboxing Solid

Solid's Architecture

Identity Profile Server
- Certificate
- Identifies to the users' profile
- Writes a unique key code

User's Client
- Loads
- Deliver Content
- Access Resources
- Deliver Content

Solid POD
- REST Service
- ACL Support
- Containers
- LDP Support
- Non-RDF
- RDF
- Resource Storage
- Patch Update

Someone Else's Solid POD
- REST Service
- ACL Support
- Containers
- LDP Support
- Non-RDF
- RDF
- Resource Storage
- Patch Update
We used existing vocabularies to create a new App resource.

Apps are written and read as ‘CreativeWork’ such that other applications will also be able to read their properties.