SoLiD Web Infrastructure

Re-decentralizing the web, for Privacy and Innovation

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Disclaimer

Not a developer

I'm here as a concerned netizen

"The power of the Web is in its universality."

-- Tim Berners-Lee, W3C Director and inventor of the World Wide Web

- Freedom to access...
  - Any OS, browser, hardware, desktop, phone, tablet ...
- Freedom to innovate...
  - anyone can build for the Web and interoperate using open standards
- Independence and decentralized...
  - creation can be anywhere and independent of external control/limitations

Challenges to the Web's Universality

browser wars

- people needed a certain computer
- developers depended on browser's pace

platform wars

- you either *compete* for innovation with {insert social platform}, or *depend* on it

Platform Monetization

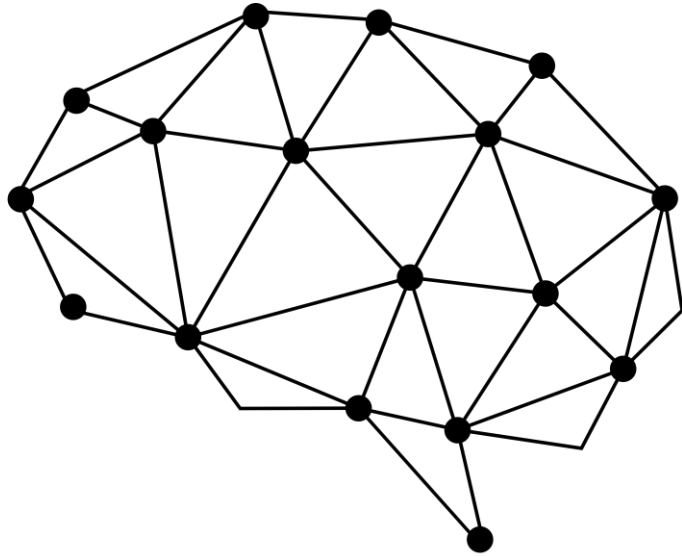A platform's success came down to its monetization of its users and their personal info

"If you're not paying for a product, you are the product" -- *Adage made famous by Tim O'Reilly*

Result: **Walled gardens of personal data centralized in a handful of platforms**

Cambridge Analytica

In the 2010s, personal data belonging to millions of Facebook users was collected **without their consent** by British consulting firm Cambridge Analytica, to be used mainly for political advertising.

In 2019, Facebook was fined **$5 billion** by the Federal Trade Commission due to its privacy violations. They also agreed to pay **£500,000** to the UK Information Commissioner's Office, in 2019.

Sources: https://en.wikipedia.org/wiki/Facebook%E2%80%93Cambridge_Analytica_data_scandal
https://web.archive.org/web/20191031072141/https://www.bbc.com/news/technology-50234141

Massive centralized hurts diversity, innovation, and choice

- Developers are at the mercy of centralized platforms
  - for permission to access data and identity
  - … "with us or against us" relationship with platforms
- People at the mercy of centralized platforms
  - for control of their data and cannot switch to other apps
  - users locked-in and cannot easily switch to new innovative apps
- Far-reaching consequences for privacy
  - Lack visibility into what is being retained
  - Little control over how it is used, or who is using it.
- Personal data scattered
  - can't be easily used as a cohesive unit

Introducing Solid
(SOcial LInked Data)

Conventions for building decentralized applications, Restoring choice on the Web by Decoupling data and apps

W3C Standards based

Modular Design

Extensible

True Data Ownership

Reuse Existing Data

SOLID Decouples Data and App
Using data Pods and Web Interfaces

- Draft standard reusing W3C standards: HTTP, LDP, LDN, etc.

- A Pod is a Web server
  - With support of access control and Linked Data

- Data and App Agnostic
  - Works with any app like a website
  - Works with any data

Decentralized Apps

Data Pods

Posts   Contacts   Photos   Schedule   Medical   ...
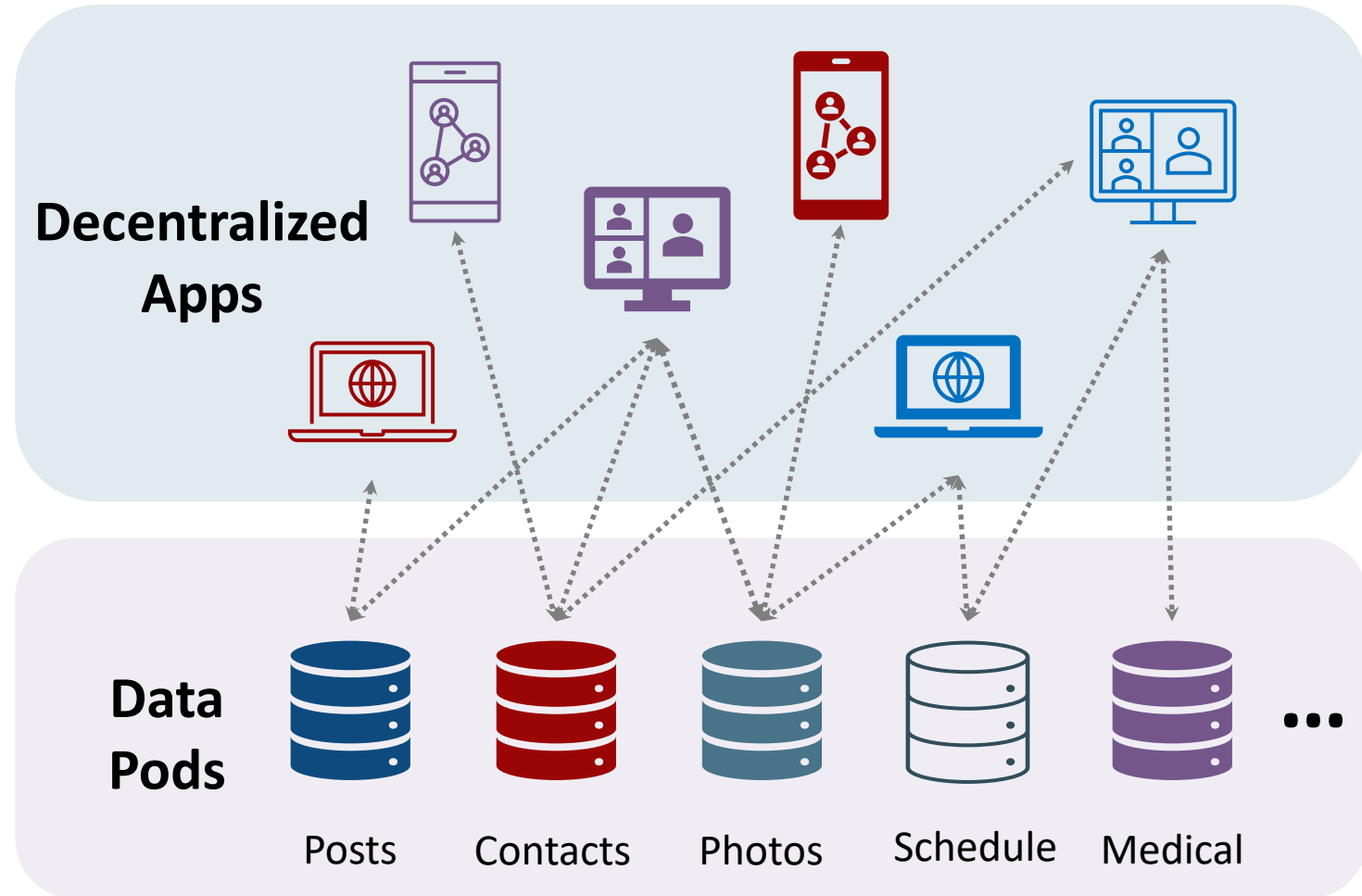
# SOLID Enhances the Internet Ecosystem

Interoperability and Collaboration

Privacy and Control
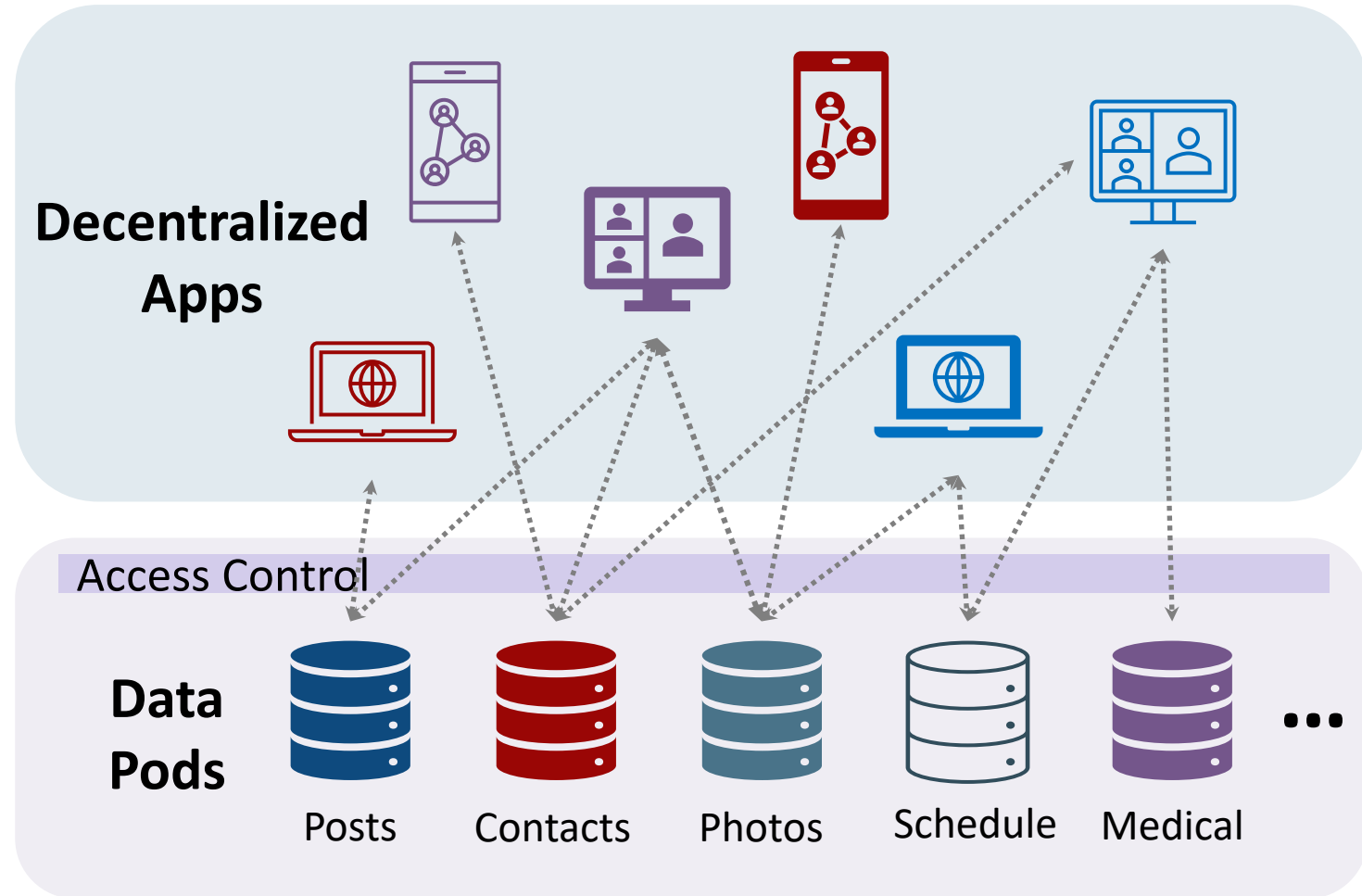
Innovation and Sustainability

Open Interoperability and Collaboration

- **Allows data access across different applications** and platforms, enabling seamless sharing of data between users and applications.

- Enhanced User Experience by **enabling personalized and context-aware experiences**.
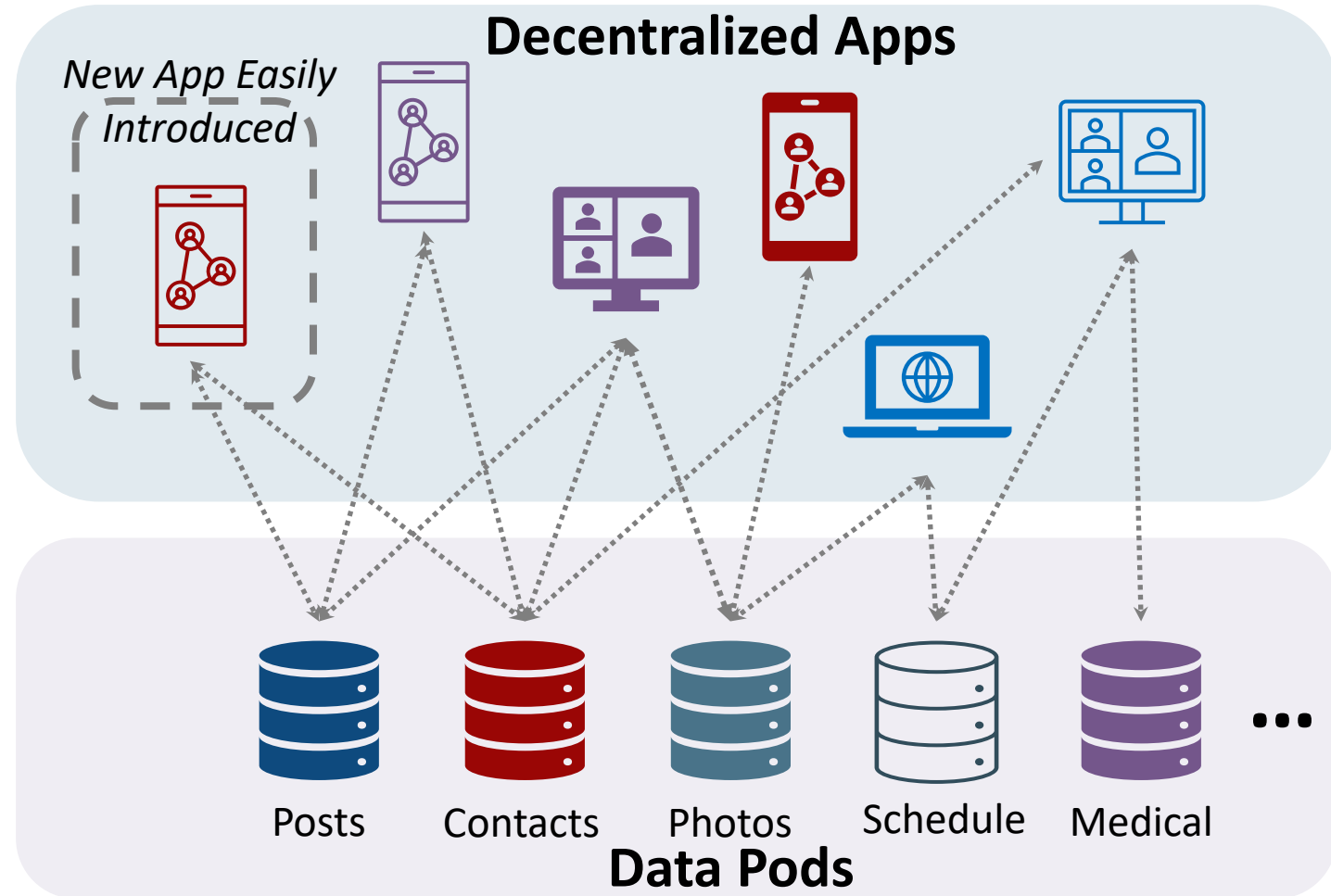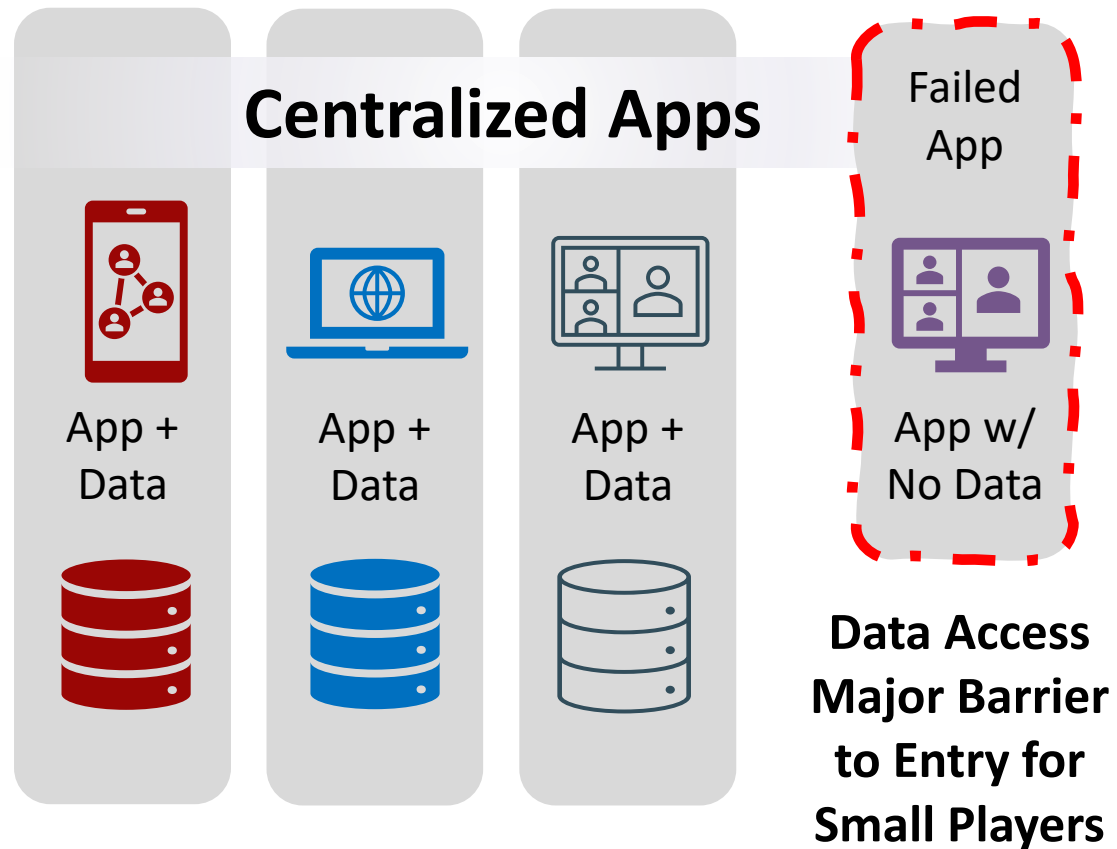
Enhances Privacy and Control

- **Empowers individuals to own and control their data**, which enhances privacy and autonomy for users and fosters greater trust in online interactions.

- Helps application providers with **Data Sovereignty Compliance and regulations** by enabling users to store their data within specific jurisdictions or regions.

- **Reduced risk of wide-scale data breaches** and unauthorized access, due to distributed nature or data.
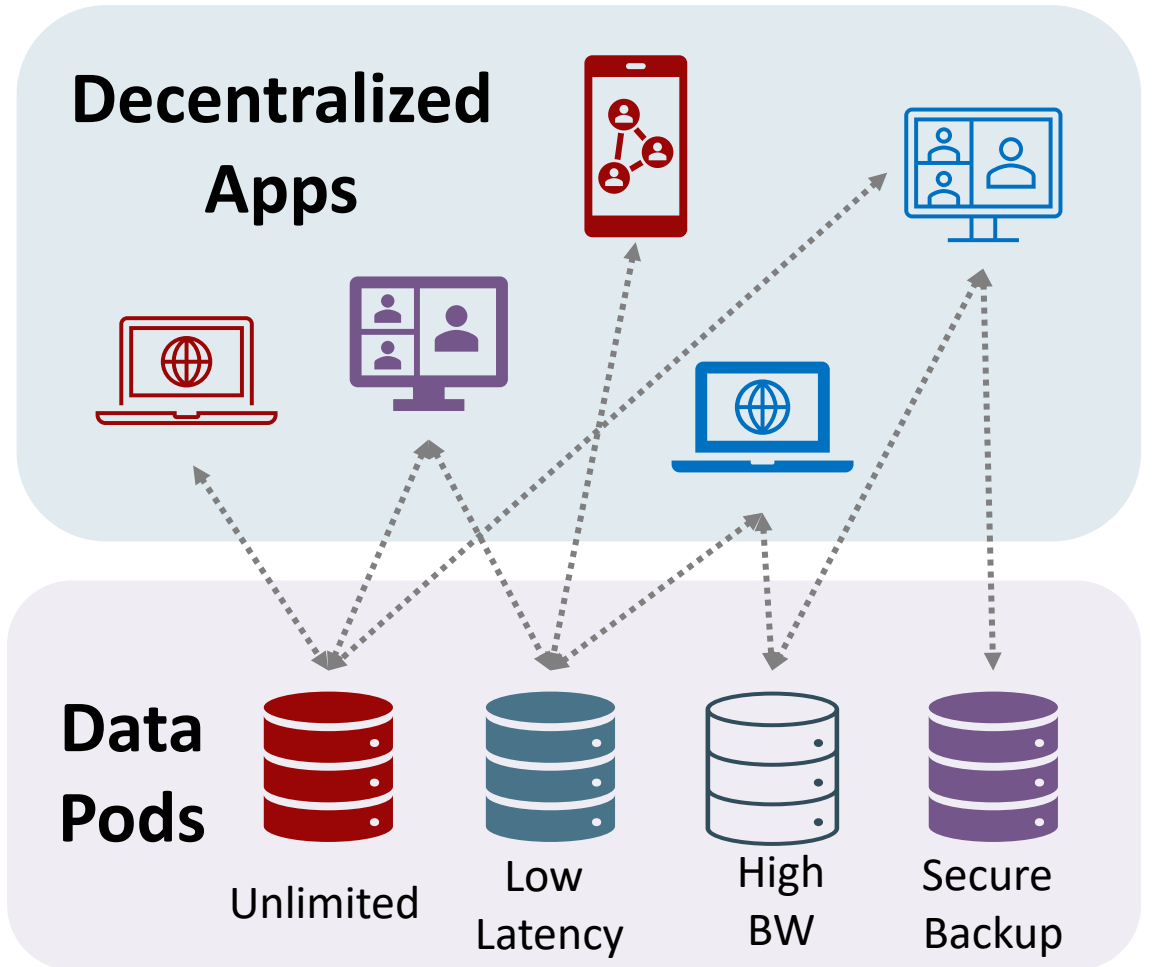
Driving Innovation and Sustainability

Competition Based on Data Ownership

Centralized Apps

App + Data

App + Data

App + Data

Failed App

App w/ No Data

Data Access Major Barrier to Entry for Small Players

Competition Based on Quality

Decentralized Apps

Data Pods

Unlimited

Low Latency

High BW

Secure Backup

Solid Pod Hosting
Self-host or Use a provider

- Self-host using Solid Open-Source server:
  - run at home and/or at your workplace
  - rent server space
  - solidproject.org/self-hosting
- Use a hosting provider
  - use one of the free community servers
- Server, libraries and several apps exist and are usable for developers

Provider	Responsible for Domain Name and Terms	Responsible for Hosting	Hosting Location
Inrupt Pod Spaces	Inrupt, Inc.	Amazon	Germany
solidcommunity.net	Solid Project	Digital Ocean	UK
solidweb.org	Solid Grassroots	Hosteurope	France
trinpod.us	Graphmetrix, Inc.	Amazon	USA
use.id	Digita	DigitalOcean	EU
solidweb.me	Meisdata	Hosteurope	France
Data Pod	iGrant.io, Sweden	RedPill Linpro, AWS, GCP or Azure	EU
redpencil.io	redpencil.io	Hetzner	Finland
teamid.live	Meisdata	Hosteurope	France

Source: https://solidproject.org/self-hosting/

Source: https://solidproject.org/users/get-a-pod

Example Solid Open-Source Tools and Applications

https://solidproject.org/apps
https://solidproject.org/developers/tools/

Solid-specific Tools

- Molid - a mock server that can be us
- Penny - a file manager for Solid pods
- Shighl - a tool that lets your write si
  Session, Profile, Inbox, Chat…
- SolidOS Databrowser - The operatir
- Solid Data Kitchen - The solid datab
- Solid Filemanager - a file manager fc
- Solid IDE - GUI front-end for Solid d
- Solid Shell - command line, interacti

Solid-specific JavaScri

A typical Solid app will perform one or m

- login & manage sessions (Authentic
- parse & query linked data (Linked D
- manage documents and informatior
- provide a user interface (Interface L

Showcase

Application	Description
Media Kraken	Track your media and neve - Documentation. GNU Ge - Source code. GNU Gener - Provide Feedback.
Penny	A general Pod Browser by
Solid IDE	File manager and IDE. - Source code MIT License
Solid File Manager	A Solid app that help you r - Source code MIT License
Pod Pro	An IDE for editing Solid Pc
graphMetrix	Allows you to browse your graph, doc, gallery and grid 30 day free trial followed b

Content, Notes, Blogging an

| Application	Description
Notepod	A simple note-taking app t - Source code by Vincent T
OEdit	An editor app for raw files - source code by Jackson N
Plume	Blogging platform. - Source code MIT License
Dokieli	A client side editor for dec - Dokieli Apache License v
solidProfileEditor	A Solid app to view and ec - solidProfileEditor
solidBookmarker	A Solid app to manage you - solidBookmarker
poddit	Bookmarking app. - Source code © 2019 Vin
Booklice	Bookmarks app with com

Social

Application	Description
Liqid Chat	by Jackson Morga
Solid Chat Challenge Student Projects	Source code unde course led by Pro
Solid Profile Viewer	A react app to vie - source code is u
Taisukef	Add friends. - Source code fror
WebID Profile editor	Source code MIT
OpenLink YouID	Identity and crede WebID-Profile dc TLS and WebID-T Copyright © 2013
Solid Groups	Lets you form soc Veltens.

Early Adopter: Flemish Data Utility Company

A neutral entity created to stimulate citizens' trust in sharing data, by focusing on responsible and secure data sharing. All while boosting the digital economy by making data more findable and exchangeable, between citizens, companies and associations for better cooperation.
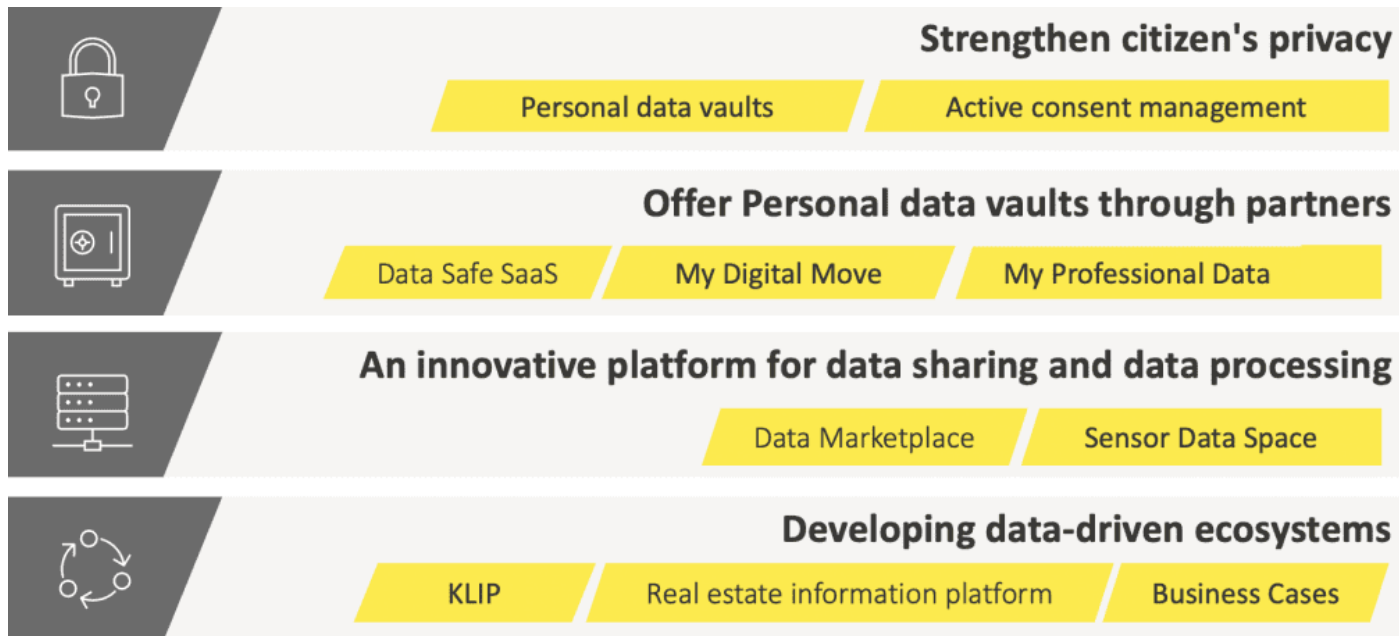
Transitioning from research to ecosystem backed by *inrupt*

- MIT has been its home, in initial development of server and apps

- Inrupt is accelerating development
  - Open the ecosystem for all
  - Create tools for developers
  - Offer services and apps
  - Maintain common building blocks as open source
  - Founded by Tim Berners-Lee with others at MIT in 2018
  - Goal **re-decentralize** the Web

Call to Action

Provider: Host a pod today!
Developer: Start hacking with Solid!

Spread the Word!

For more info:
https://solid.mit.edu
https://solidproject.org/
https://solid.inrupt.com/
https://solidcommunity.net/
https://www.w3.org/community/solid/