

SoLiD Web Infrastructure

Re-decentralizing the
web, for Privacy and
Innovation



Osama I. Al-Dosary, May 23, 2024, dosary@yahoo.com

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

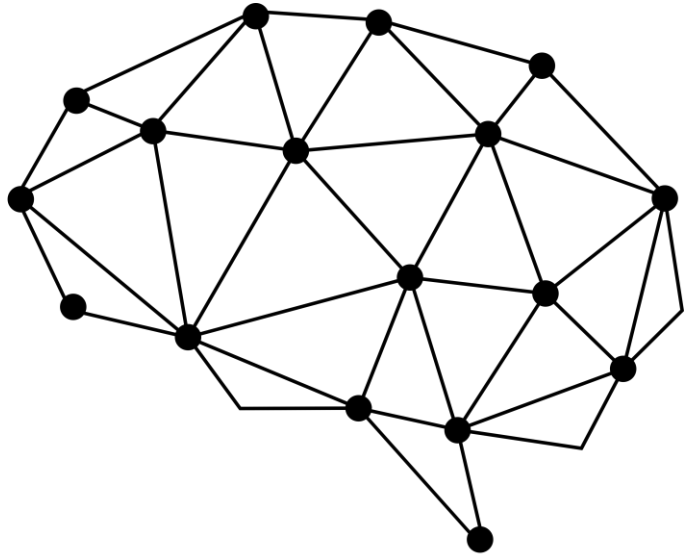


“If you’re not paying for a product, you are the product” -- *Adage made famous by Tim O’Reilly*

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.



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

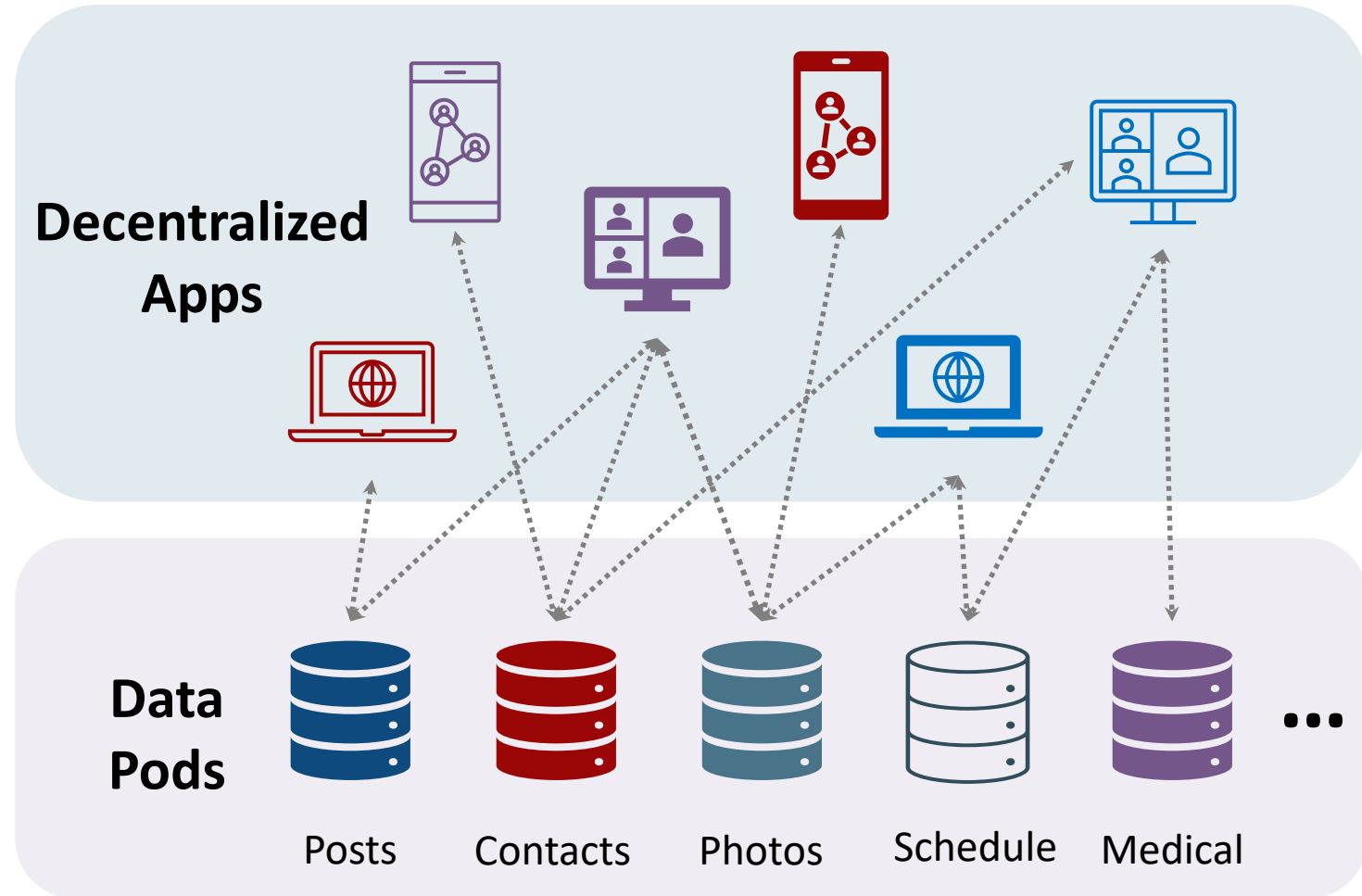
True Data
Ownership

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



SOLID Enhances the Internet Ecosystem



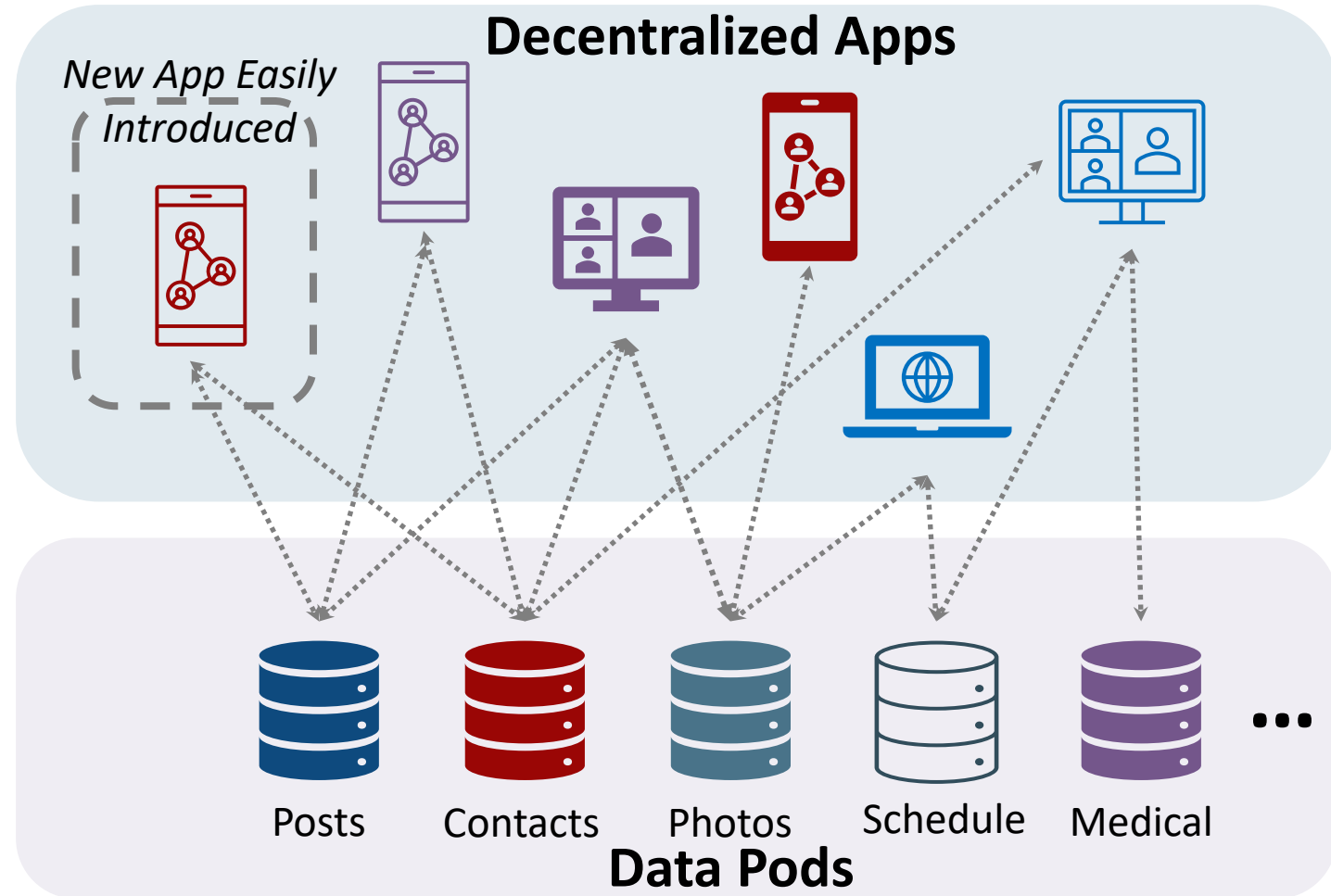
Interoperability
and
Collaboration

Privacy and
Control

Innovation and
Sustainability

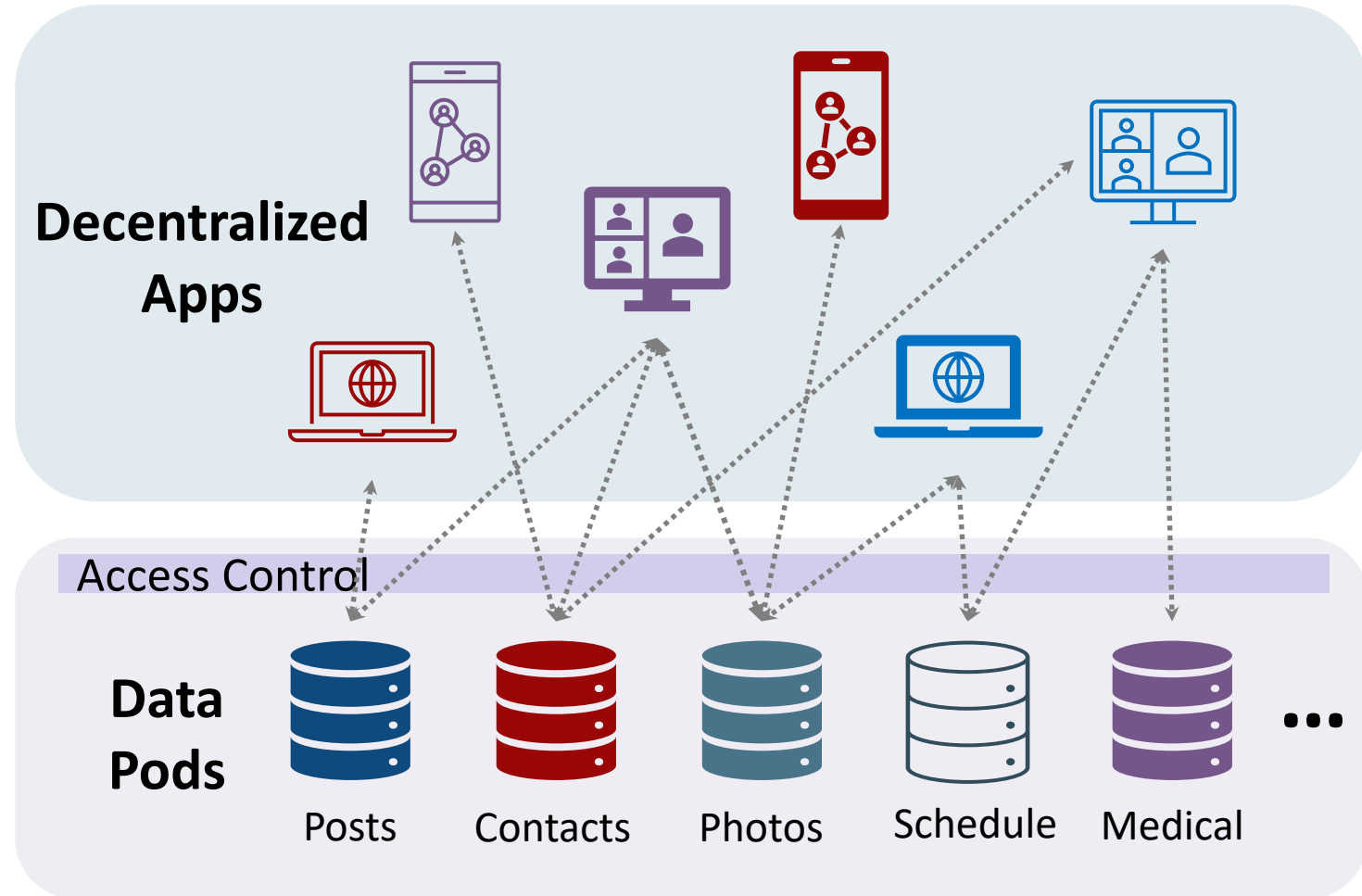
Open Interoperability and Collaboration

- **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.**



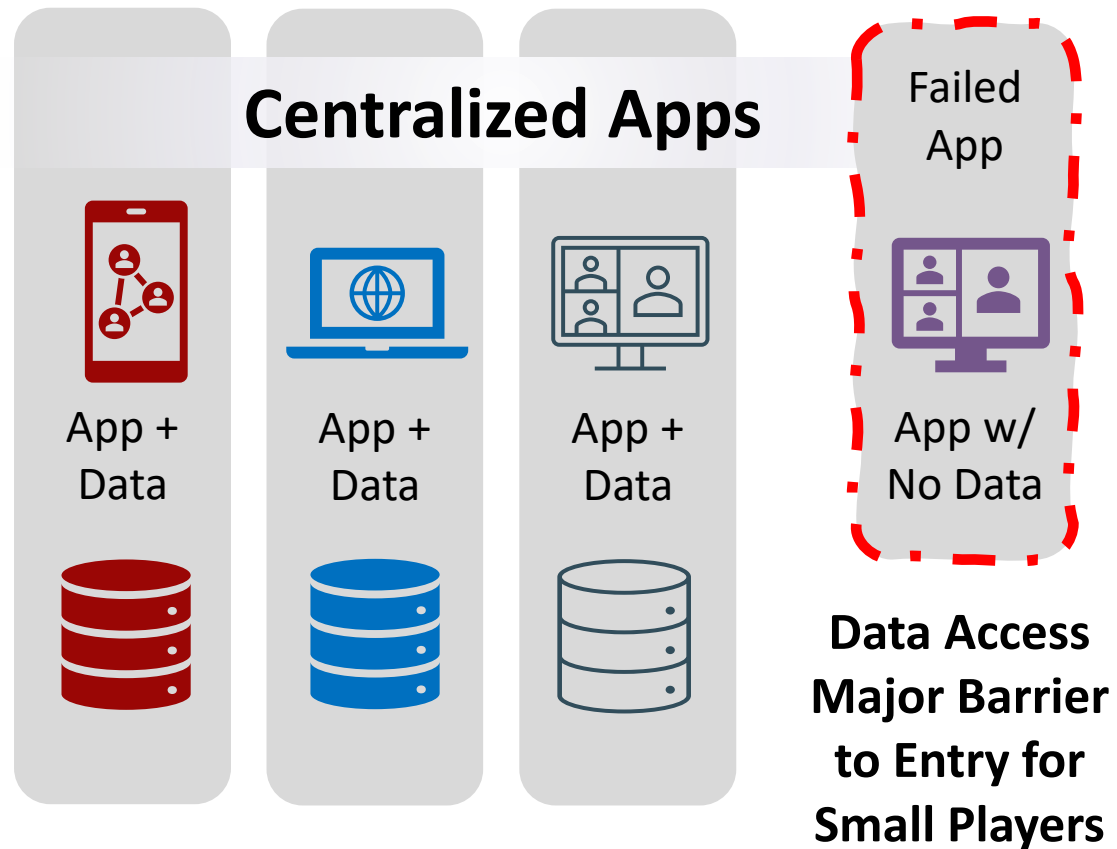
Enhances Privacy and Control

- **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 of data.

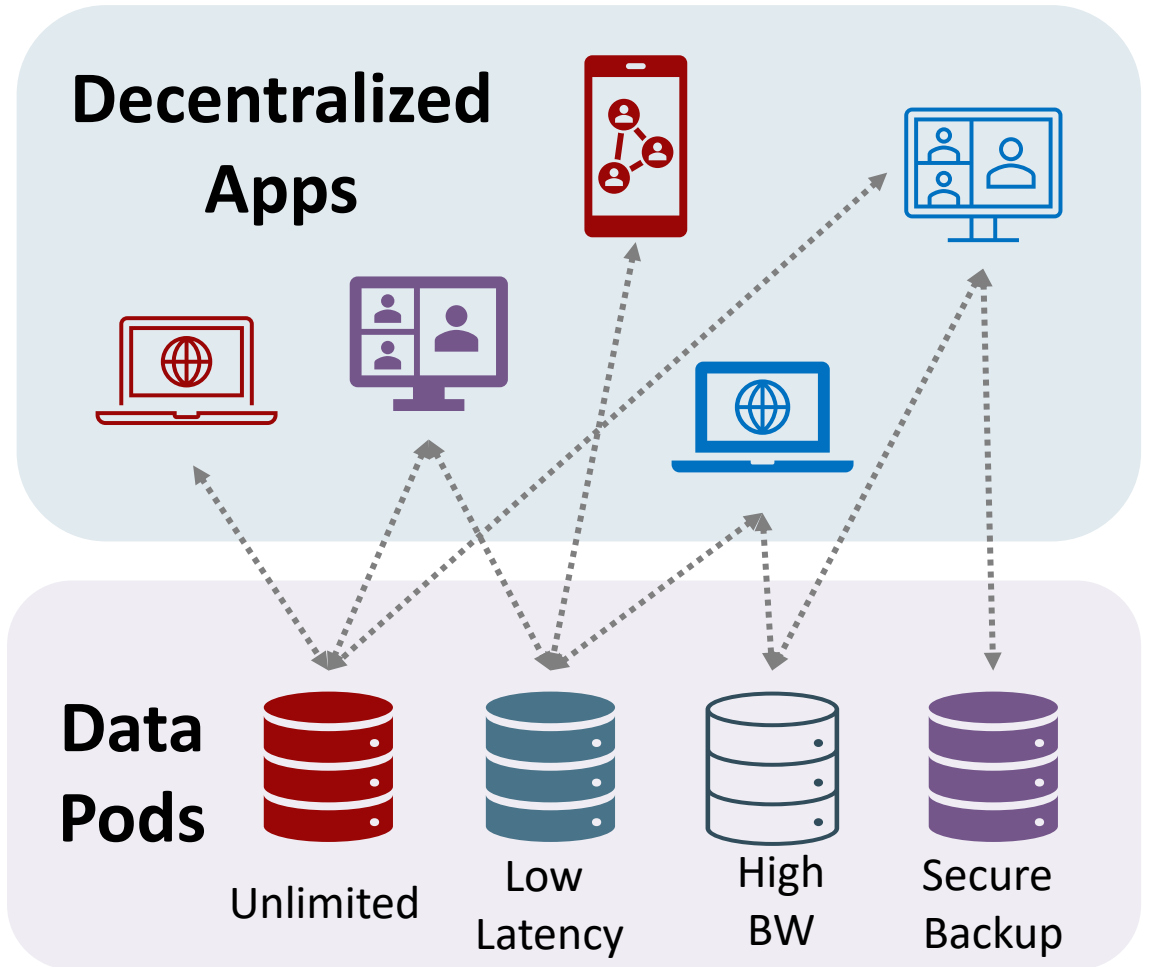


Driving Innovation and Sustainability

Competition Based on
Data Ownership



Competition Based on Quality



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

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

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/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 used for testing
- [Penny](#) - a file manager for Solid pods
- [Shighl](#) - a tool that lets you write siri scripts for Session, Profile, Inbox, Chat...
- [SolidOS Databrowser](#) - The operating system's data browser
- [Solid Data Kitchen](#) - The solid data browser
- [Solid Filemanager](#) - a file manager for Solid pods
- [Solid IDE](#) - GUI front-end for Solid pods
- [Solid Shell](#) - command line, interactive shell

Solid-specific JavaScript

A typical Solid app will perform one or more of the following:

- login & manage sessions ([Authentication](#))
- parse & query linked data ([Linked Data](#))
- manage documents and information
- provide a user interface ([Interface Layer](#))

Showcase

Application	Description
Media Kraken	Track your media and never miss a post. - Documentation . GNU General Public License - Source code . GNU General Public License - Provide Feedback .
Penny	A general Pod Browser by Vincent
Solid IDE	File manager and IDE. - Source code MIT License
Solid File Manager	A Solid app that help you manage your files. - Source code MIT License
Pod Pro	An IDE for editing Solid Pods
graphMetrix	Allows you to browse your graph, doc, gallery and grid. 30 day free trial followed by \$100 per month

Content, Notes, Blogging and

Application	Description
Notepod	A simple note-taking application. - Source code by Vincent
OEdit	An editor app for raw files. - source code by Jackson
Plume	Blogging platform. - Source code MIT License
Dokieli	A client side editor for documents. - Dokieli Apache License v2
solidProfileEditor	A Solid app to view and edit your profile. - solidProfileEditor
solidBookmarker	A Solid app to manage your bookmarks. - solidBookmarker
poddit	Bookmarking app. - Source code © 2019 Vincent
Booklice	Bookmarks app with comments

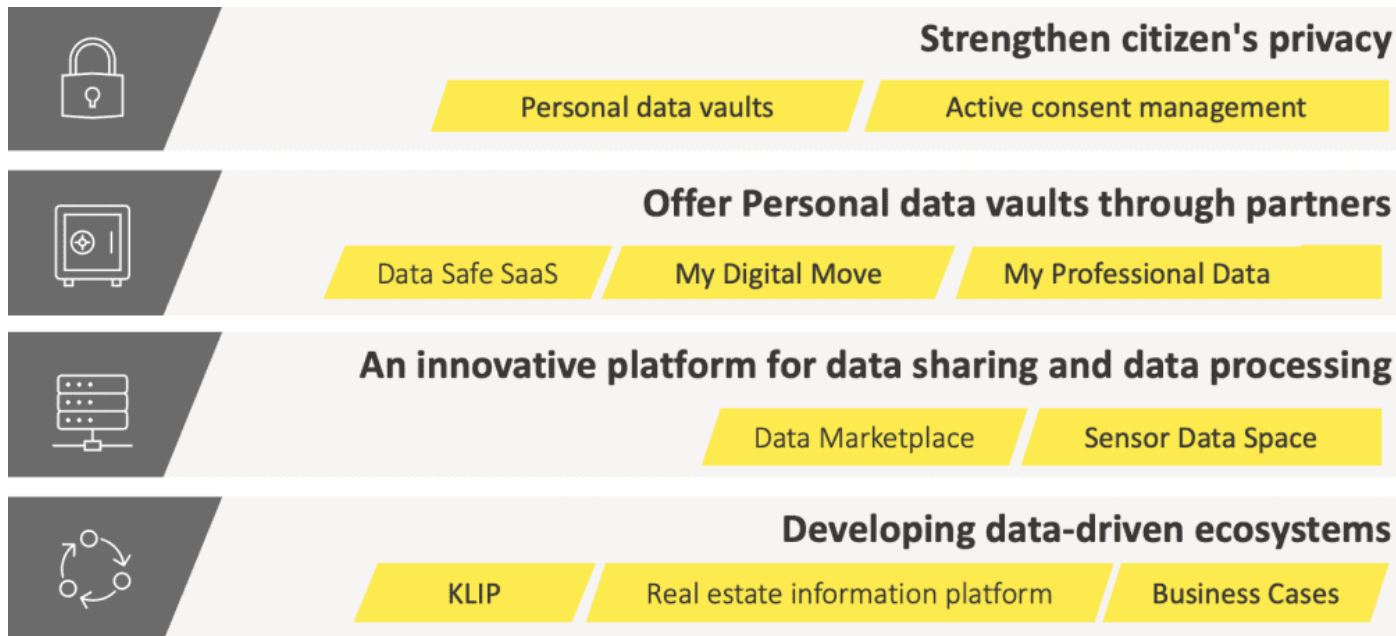
Social

Application	Description
Ligid Chat	by Jackson Morgan
Solid Chat Challenge Student Projects	Source code under development for a course led by Prof
Solid Profile Viewer	A react app to view profiles. - source code is under development
Taisukef	Add friends. - Source code from Taisukef
WebID Profile editor	Source code MIT License
OpenLink YouID	Identity and credentials management. WebID-Profile documents. TLS and WebID-TLS. Copyright © 2018 OpenLink Software
Solid Groups	Lets you form social groups. Veltns .



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/>

