



Building business applications with Solid

Bridging the gap between theory and practice



Solid4Media 2024

Nice to meet you




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LinkedIn

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partner** with business
impact



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Cutting edge vs bleeding edge

/ No Stack Overflow to the rescue

/ Start-up context + bleeding edge forces you to make pragmatic decisions

/ Use it when it make business sense

The screenshot shows the Stack Overflow 'Tags' page for the 'solid' tag. The page title is 'Tags' and it includes a definition: 'A tag is a keyword or label that categorizes your question with other, similar questions. Using the right tags makes it easier for others to find and answer your question.' Below the definition is a search bar containing 'webid' and a list of related tags with their question counts and activity for the current year. The main content area shows a grid of tags related to 'solid', including 'solid', 'solidity', 'solid-principles', 'solidworks', 'solid-js', 'solid-state-drive', 'consolidation', 'solidus', 'solidworkspgl', 'neoid', 'solidcolorbrush', 'solidworkspdmapi', 'solid-start', 'ibm-solidb', 'solid-bodies', and 'solid-queue'.

Tag	Questions	Asked this year
sap-web-ide	197	7
web-ide	60	1
webid	26	1

Tag	Questions	Asked this year
solid	80	21
solidity	6850	12
solid-principles	1172	5
solidworks	416	45
solid-js	265	5
solid-state-drive	254	16
consolidation	180	7
solidus	92	5
solidworkspgl	81	28
neoid	218	1
solidcolorbrush	22	2
solidworkspdmapi	13	8
solid-start	10	9
ibm-solidb	8	0
solid-bodies	2	0
solid-queue	1	0



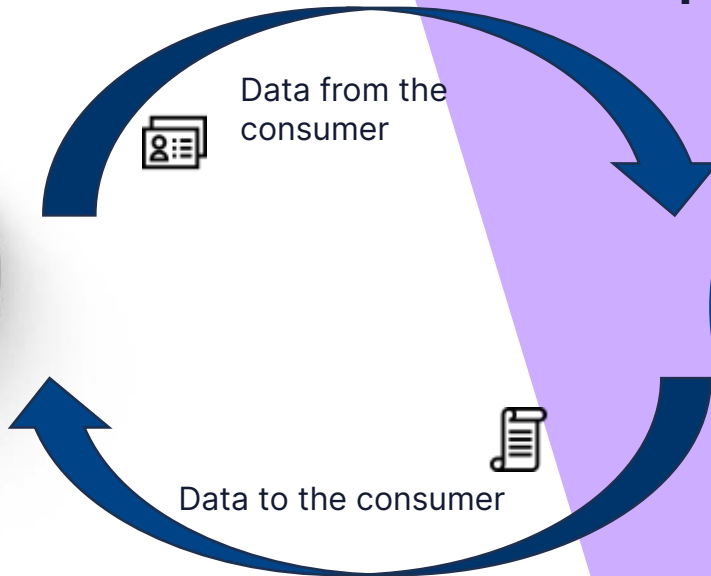
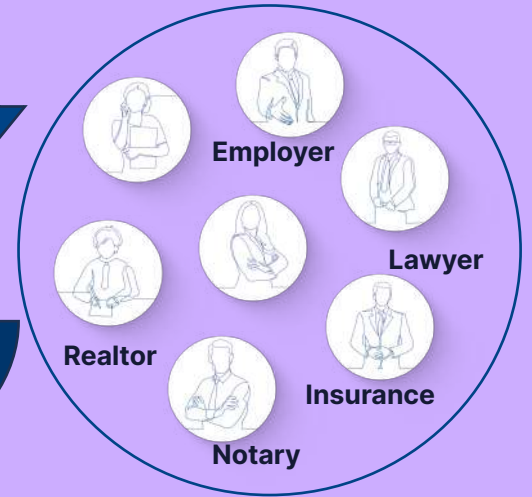
Linckr

Why make it difficult, when you can use Linckr?

Consumers



Providers

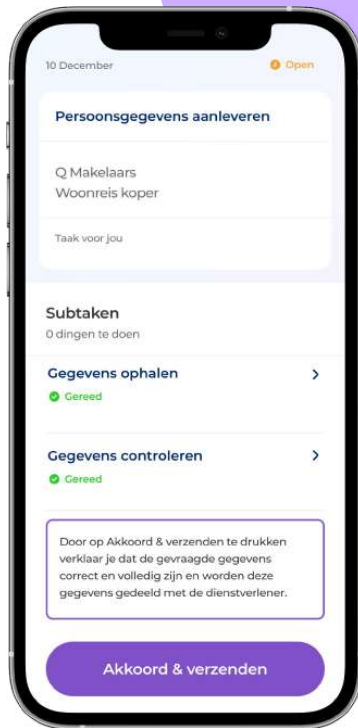


Linckr

Why make it difficult, when you can use Linckr?

Consumers

- / Fetch authentic data with one click
- / **One app** to **share data** with all their **service providers**
- / All your data in your own **personal data vault**
- / No re-entry of data necessary, but **re-use of data**
- / Process guidance across various service providers
- / **Control** and **transparency of shared data**



Providers

- / **Verified** customer identity (EIDHAS high)
- / **Verified data** from authentic sources
- / Better & safer communication with their customers
- / **Compliance** (KYC, AML, GDPR) at less cost
- / **Operational savings** - no manual data capture
- / **Digital import**
- / Better **data quality**

Business requirements

Privacy of consumer

Personal data vault
of choice

Always in control and
consent required

Can cut the
line any time

Reuse and
interoperability of
data

Improve user
experience

Data standards across
industries

Taxonomies

Auditability &
traceability

Every user action

Stored forever

Immutable &
provenance

Process guidance

Tailored

Customer journeys

Configurable

Solid Protocol supports the business



Learnings

- 1 \ Don't store all your data in Solid pods
- 2 \ Linked data is not a must
- 3 \ Not completely following the specification
- 4 \ Copying data can be acceptable
- 5 \ Embed consent flow for user experience
- 6 \ Expose WebId only when it makes sense

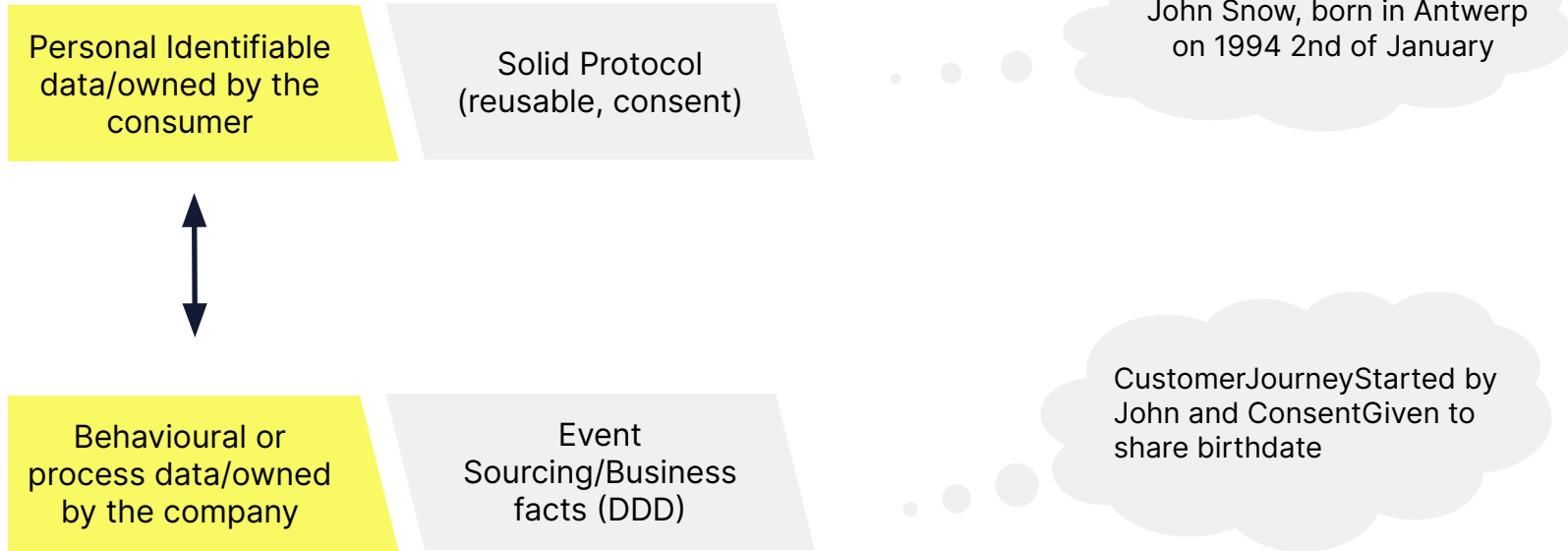


01

Don't store all your data in Solid Pods

Although Solid aims to make data independent of applications

What type of data to store where?

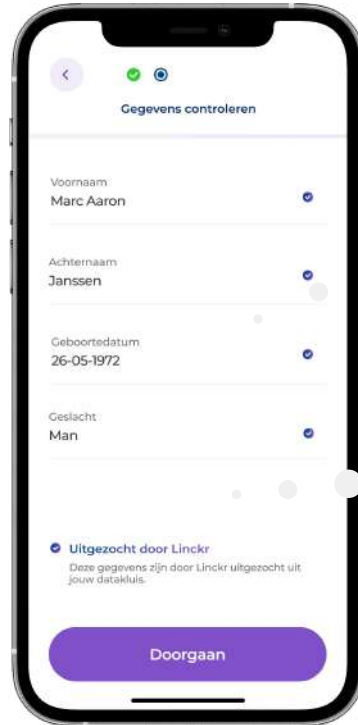


What type of data to store where?



Stored in event store (json)

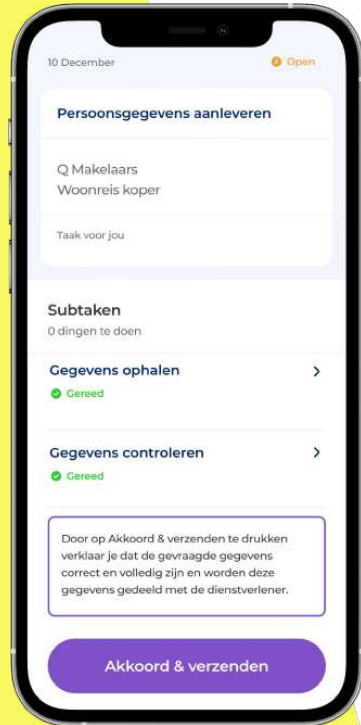
CustomerJourneyStarted by John and ConsentGiven to share birthdate



Personal data vault
Linked data

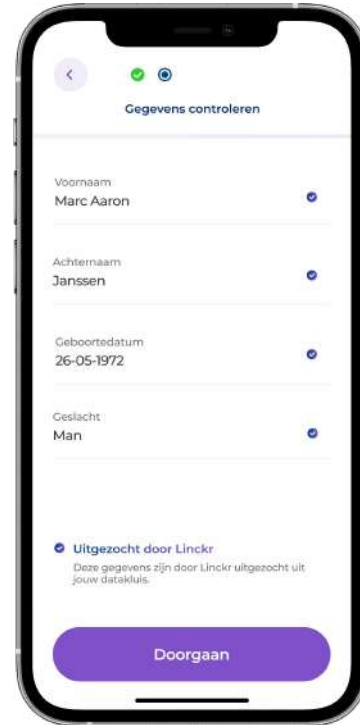
John Snow, born in Antwerp
on 1994 2nd of January

It's all about tradeoffs



Companies can still choose for business reasons to own & lock data:

- Compliance
- Unique capability/process
- No value to share



User Data Experience, a new discipline that researches what data makes sense from a value perspective to share & reuse in other contexts

Ecosystem thinking also can thrive the decision to store data in an interoperable fashion

Data vault vs lock (sluis)

02

Linked data is not a must when using Solid,
(but advised)

Linked data is not a must

Pro's

- / Linked data is self describing (ontologies, schema.org)
- / Linked data fosters machine reasoning and inference
- / Prevents data duplication
- / Makes sense when persisted in graph database, this allows fine grained querying



Con's

- / Developer experience is not good (yet), lack of training resources
- / Solid persists data in a file storage, not in a graph db!!!
- / Granularity of access control on file level, not on triple
- / What with unstructured data (photo's, pdf's, songs)
- / Alternatives like JSON Schema also allow to create contracts that foster interoperability and are more common and easy to understand by our integrators
- / Making ontologies and taxonomies is expensive in terms of stakeholder management & governance

Linked data is advised, if you

/ can build on top of existing taxonomies
(zorgeloosvastgoed, Oslo standards, OTL)

/ are a dominant leader in your ecosystem

Linckr is now leveraging
the Zorgeloos Vastgoed
Taxonomy



03

The specification is not ready

Make sure to make Solid a replaceable component in your architecture



Not using the fine grained access control mechanisms of Solid Servers

Abstract away Solid
in your software

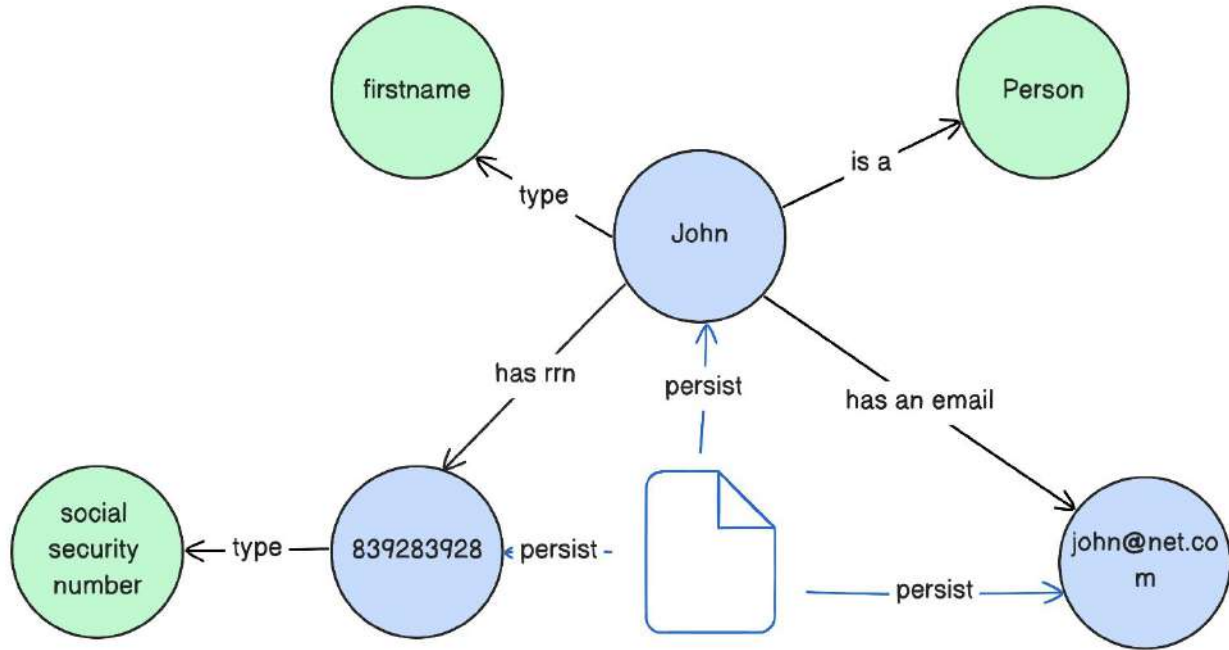
/ Solid specification standardizes data vaults & sharing data with consent, BUT the specification is not finished and does not cover all use cases!

/ For example fine grained access control on attribute level

/ Solid is bleeding edge, so make sure that you can replace it, when it does not work out

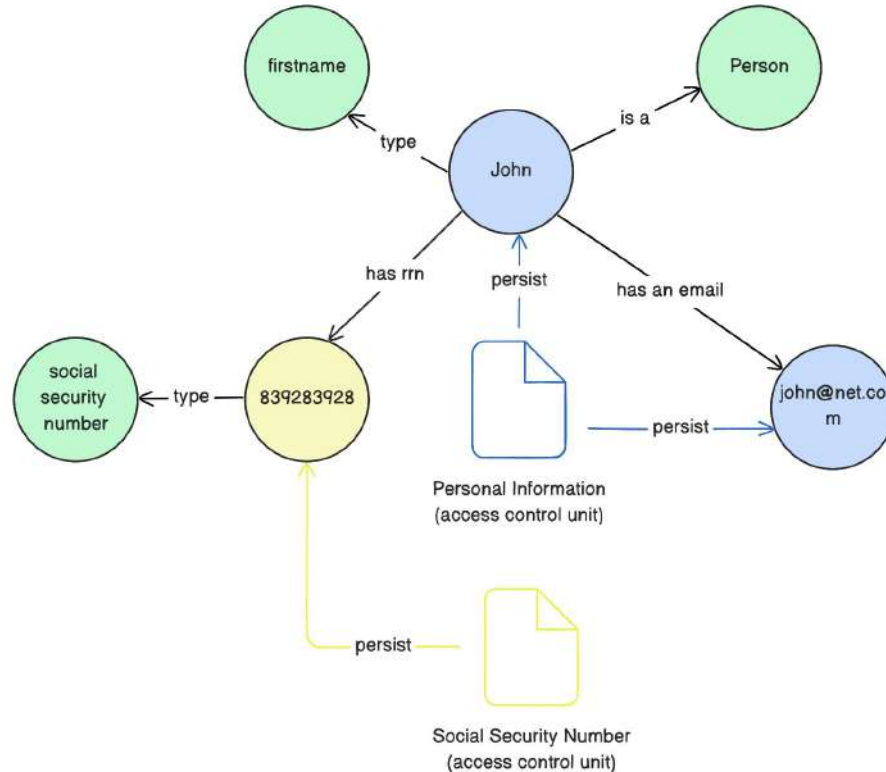


File based storage creates coupling with the application that writes first



What if this can't be shared with another application?

File based storage does not allow for granular access control



Decided to be the fine grained access gate keeper until solid comes with a mature solution

04

Copying data can be acceptable

Verifiable attestation is more important

Why?

- / Hard to constrain from a technical perspective
- / Performance and uptime dependencies with downstream
- / The business value is in the trustworthiness of the data
- / Verifiable attestation is more important
- / Ex. purchase agreement in PDF (printed)

Copying data can
be acceptable

05

Embed consent flow for user experience

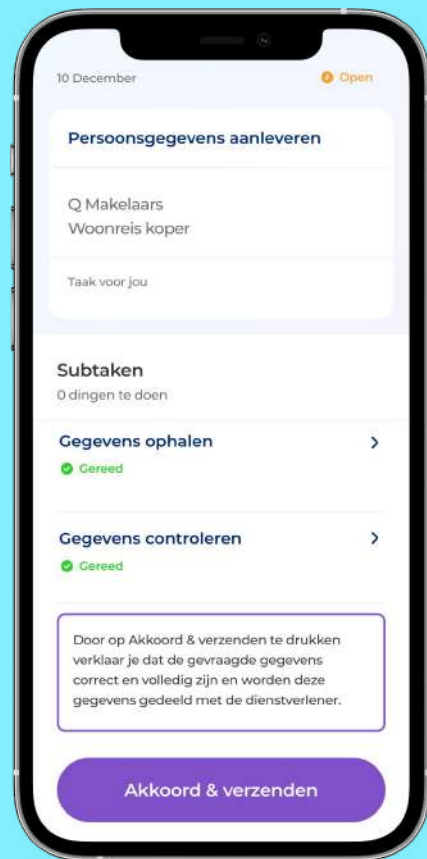
Embed consent flow for user experience

/ Solid envisions that consent is handled by an independent Solid application, specification not ready yet

/ **Decided not to use it for smooth user experience**

/ **Not using Solid Data Grants yet**

/ Linckr manages the access control in a dedicated part of the Solid Pod



06

Expose webId only when it makes sense

Why?

- / Hard to explain to end users
- / For consumers we speak about a username for their vault
- / For service providers we don't mention it all, it scares them



Expose WebId only when it makes sense



Questions




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