

The CERN-Solid Proof of Concept (PoC)

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Presentation for the [10th August 2021 Women of Solid meetup](#)

How did this PoC start

From creative thinking and lobbying in [the CERN-Solid gitter channel](#).

1. [Jan Schill](#) looking for a MSc thesis subject for himself.
2. [Maria Dimou](#) wrote [this project description](#).
3. CERN and Solid experts supported us and answered our questions between September 2020 and June 2021.
4. [This excellent quality thesis](#) came out at the end.

Overview

- **Solid terms' reminder**
 1. What Is Solid?
 2. What Is a Solid Pod
 3. What Is a Solid server
- **The CERN-Solid Proof of Concept (PoC)**
 1. *Comments* in Indico events
 2. Indico Conference *Registration* from pod data.

Solid

- **Social Linked Data**, is a project, a standard, an ecosystem, a movement and a community initiated by Sir Tim Berners-Lee.
- Allows people to control *where* their own data are stored and *who* has access to them.
- It combines existing W3C standards and is built on top of the existing Web.

The Solid pod

A decentralised data store for one's personal data. A pod (*) is like a secure personal Web server for all kinds of data.

- Data is stored as *Linked Data*, i.e. the resource gets its own HTTP URI on the Web.
- The pod is described by a unique WebID. WebID examples:
 - <https://timbl.inrupt.net/profile/card#me>
 - <https://dimou.solidcommunity.net/profile/card#me>
 - <https://janschill.net/profile/card#me>

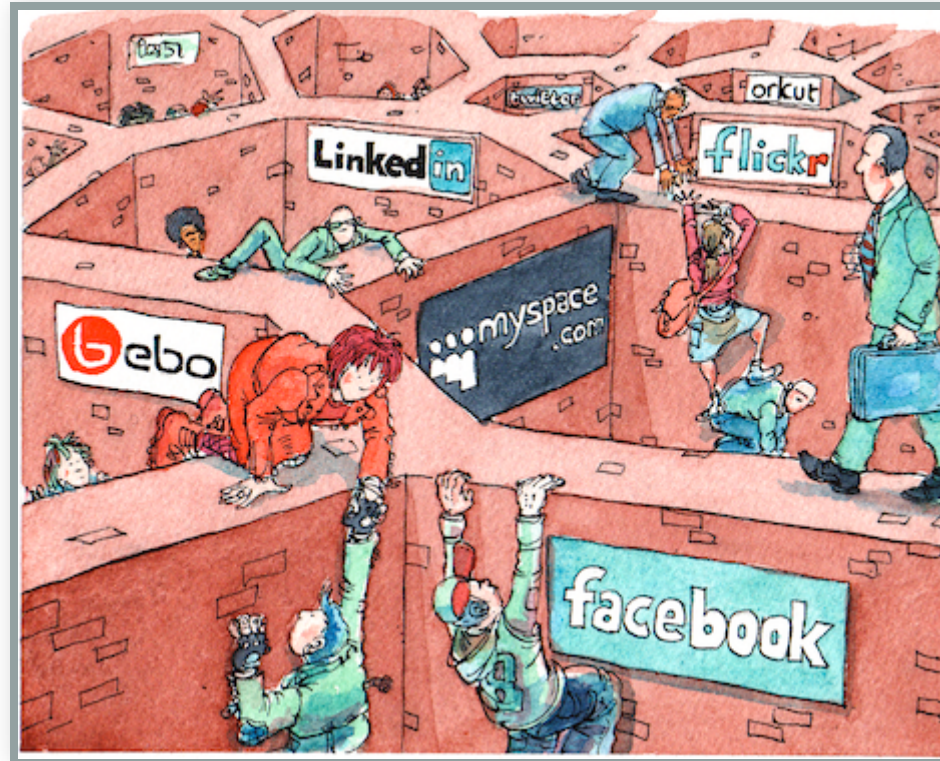
(*) Pod: a protective container (from the Webster dictionary).

The Solid server

A Web server that stores users' pods, with support for access control.

Reminder of some Solid server implementations in the appendix.

Ideally Solid is about escaping from this situation



Taken from: <https://www.w3.org/DesignIssues/CloudStorage.html>

The CERN-Solid code investigation project

1. **Review Solid specifications**
 2. **Evaluate Solid implementations**
 3. **Enrich Indico with Solid principles**
- *Comments* in Indico events via Solid pod authentication.
 - *Registration* in Indico conferences with personal data taken from the Solid pod.
4. **Make Recommendations on Solid adoption in CERN applications**
 5. **Document challenges, advantages, gaps**

What is Indico

- A CERN-developed open-source tool for event organisation, archival and collaboration.
- **Indico** is used every day at CERN to manage more than 600,000 events of different complexities and 200 meeting and conference rooms.
- Also adopted by UN agencies and other organisations.
- Resilient and reliable for over 20 years.
- Indico has no incentive for user data in modules of:
 - Meeting comments
 - Conference registration

Points 1 & 2

- Done in the September-December 2020 period.
- Presented to the CERN community in January 2021.
 - Slides [attached to this event](#)
- Detailed report [attached to this event](#)

Details on the Proof of Concept (PoC)


Comments to Indico events via Solid pod authentication


Comments https://solidcommunity.net [Log in](#)


Thomas Baron · Apr. 26 · ...
Also I noticed that when I entered comments while I was not logged in Indico, these comments disappeared after a refresh


Thomas Baron · Apr. 26 · ...
I have delete option on all comments event those not made by me, I guess that is wrong is it?


Thomas Baron · Apr. 26 · ...
test again


 **Tim Smith** · Apr. 20 · ...
Thanks for identifying the cause of my disappearing comment :)

 **Pedro Ferreira** · Apr. 19 · ...
Yay! It works! Well done! 🎉


 **Tim Smith** · Apr. 15 · ...
Excellent, many thanks for giving me the opportunity to comment that I have no comment :)

 **CERN e-learning** · Apr. 14 · ...
This is another project, which now has a pod and is delighted to contribute to this wonderful app! Bravo Jan!

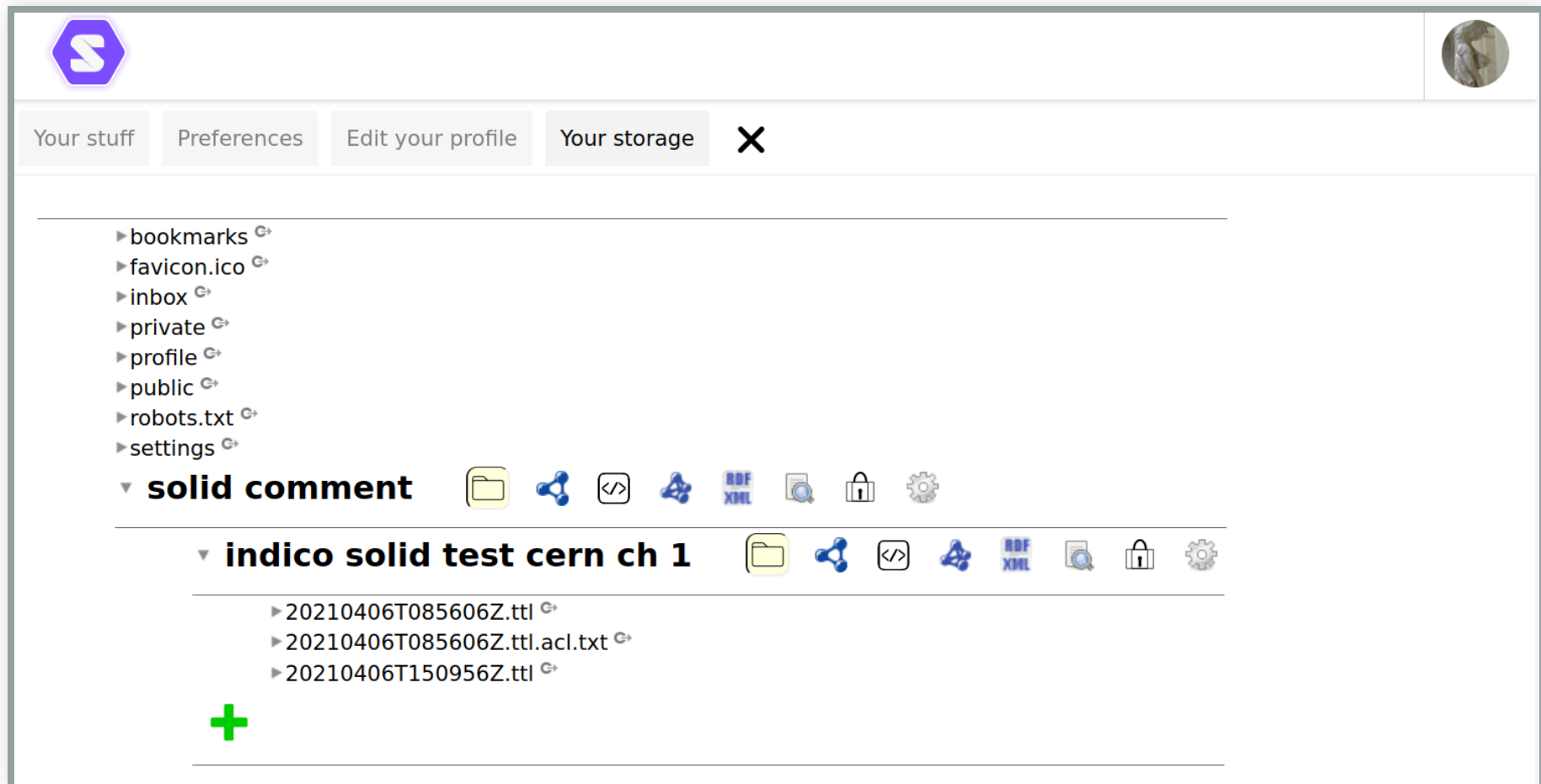
 **CERN Slides app** · Apr. 14 · ...
I have several pods. I wonder via which Solid login I am entering this comment now.

 **Maria Dimou** · Apr. 6 · ...
This is a new comment that I wish to edit on my Solid pod and see it changed there and here. This is the content after edit

Comment is unavailable.
▶ *Why is this comment unavailable?*

 **Jan Schill** · Apr. 1 · ...
Welcome to the solid-comment POC. Please write a comment.

What you see in your pod



The screenshot displays a web interface for a Solid pod. At the top left is a purple hexagonal logo with a white 'S'. To its right is a circular profile picture. Below these are navigation tabs: 'Your stuff', 'Preferences', 'Edit your profile', and 'Your storage' (which is active and highlighted in grey), followed by a close button 'X'. The main content area shows a list of items with expandable arrows:

- ▶ bookmarks
- ▶ favicon.ico
- ▶ inbox
- ▶ private
- ▶ profile
- ▶ public
- ▶ robots.txt
- ▶ settings
- ▼ **solid comment**
- ▼ **indico solid test cern ch 1**

Under the 'indico solid test cern ch 1' folder, there are three items:

- ▶ 20210406T085606Z.ttl
- ▶ 20210406T085606Z.ttl.acl.txt
- ▶ 20210406T150956Z.ttl

A green plus sign is located at the bottom left of the main content area.

Details on the code for *Comments*

- Client-side developed JavaScript application
- Self-contained, can be re-used in other applications
- Stores one comment in one file on data pod
- Communicates with data pod directly
- Needs authenticated Indico session
- Indico holds the reference to the location of comment

Indico conference registration via Solid pod data - prompt

Thesis submission: Conference registration autocomplete

1 June 2021
Europe/Zurich timezone

- Overview
- Registration
- Participant List

Registration

Registration form

Document to use for autofilling. <https://janschill.net/profile/card#me> Autocomplete

Personal Data

Title	<input type="text" value="-- Choose a value --"/>
First Name *	<input type="text" value="Jan"/>
Last Name *	<input type="text" value="Schill"/>
Email Address *	<input type="text" value="schill@hey.com"/>
The registration will be associated with your Indico account.	
Phone Number	<input type="text" value=""/> (+41) 123 45 6789
Affiliation	<input type="text" value="IT University of Copenhagen"/>
Position	<input type="text" value="Student"/>
Address	<input type="text" value="Rued Langgaards Vej 18"/> <input type="text" value="2300 Copenhagen"/>
Country	<input type="text" value="-- Select a country --"/>

*(All the fields marked with * are mandatory)*

Indico conference registration via Solid pod data - list of registrations

The screenshot displays the Indico web interface for a conference registration. The top navigation bar includes 'Home', 'Create event', 'Administration', and 'My profile'. The breadcrumb trail shows 'Home > Thesis submission: Conference...'. The main content area is titled 'Thesis submission: Conference registration autocomplete 1 Jun' and is created by Jan Schill. A sidebar on the left contains various menu items, with 'Registration' highlighted under the 'Organization' section. The main content shows a 'Registration' section with a list of registrations for 'Registration form'. The list includes columns for ID, Full name, Title, Email Address, Affiliation, Registration Date, and State. There are four registrations listed, all with a 'Completed' state. A 'Back' button is located at the bottom right of the registration list.

Home » Thesis submission: Conference...

Switch to display view

Thesis submission: Conference registration autocomplete 1 Jun
Created by Jan Schill (schill@hey.com)

Registration
List of registrations for "Registration form"

☑ Customize list + Register Remove Export Import Actions Check-in control

ID	Full name	Title	Email Address	Affiliation	Registration Date	State
<input type="checkbox"/> #3	Maria Dimou		maria.dimou@cern.ch	CERN	2 May 2021, 20:14	Completed
<input type="checkbox"/> #5	CERN e-learning		elearn@mail.cern.ch	CERN	2 May 2021, 20:19	Completed
<input type="checkbox"/> #6	Jan Schill		schill@hey.com	IT University of Copenhagen	12 May 2021, 12:45	Completed
<input type="checkbox"/> #4	CERN Slides		slides.support@cern.ch	CERN	2 May 2021, 20:18	Completed

Back

Indico conference registration via Solid pod data - Linked Data

LD: Subject	LD: Predicate	LD: Object	Indico form
#me	ns:fn	“Jan Schill”	name=“first_name”
#me	ns:fn	“Jan Schill”	name=“last_name”
#me	ns:hasEmail	mailto:schill@hey.com	name=“email”
#me	ns:gender	“Male”	Label=“Gender”

ns = <http://www.w3.org/2006/vcard/ns#>

Details on the code for *Conference Registrations*

- **Design of implemented module:** retrieve personal information **for** an Indico conference registration **from** data pod
- Original idea to store personal information **of** conference registration **in** data pod abandoned due to:
 - Sensitivity of payment details requiring reliable data retrieval
 - Archival of events need the data at Indico
 - Management of events/conference need performant data retrieval

Challenges with Solid status today

- Few applications using Solid pods so far
- Very old-fashion pod UI
- No formal support for the open source solutions.
 - A great enthusiasm in gitter though!
- Solid being a living standard, the specifications also evolve, especially in the Access Control area, leading to varying server implementations.
==> Impact on test-suite results.

Strategic decisions for CERN

Despite the challenges the Solid project has:

- Government agencies that embrace it officially (UK NHS, Flanders' administration)
- Often start-ups show Solid pod interfaces at the monthly Solid World webinar.
- Almost 2K members in [the Solid gitter chat](#)
- It is strategically and ideologically important for CERN to be engaged with Solid.

Conclusions

For the above-explained reasons we recommend that:

- we install the Community Solid Server (CSS) at CERN - CSS completion announced on 2021-08-05.
- integrate it with the CERN Single Sign-On (SSO).
- develop an attractive UI with open source tools.

OR

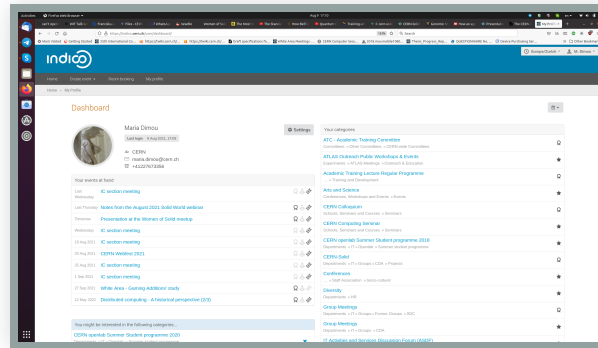
- investigate the usage of [CERNBox](#) as a Solid server through [solid-nextcloud plugin](#).

See [the Policy document](#) for details.

Useful use case for CERN

Providing Solid pods to all CERN users would answer the cross-app
“CERN user profile” aspiration

Some CERN apps offer user profiles, e.g. Indico:



These are *not* owned by the user, nor can they contain any data of the user's choice.

To go further, now lobbying for resources to work on the [follow-on project](#).

Appendix: Solid Servers today

A Solid server is a Web server that stores users' pods, with support for access control.

1. **Node Solid Server (NSS):** *Open Source* server by the MIT Solid team since 2016.
2. **Enterprise Solid Server (ESS):** inrupt's commercial *Closed Source* alternative, based on [Trellis](#). Launched in November 2020. [Article](#).
3. **Community Solid Server (CSS):** *Open Source* project by Ghent University, paid for by inrupt, to write a Solid Server from scratch in [TypeScript](#).
4. More servers like PHP or Ruby are in the making.

Thank You

Jan Schill for fantastic work

Tim Berners-Lee for guidance

Michiel de Jong for Solid expertise

Ruben Verborgh for reading the Policy note

CERN management and colleagues for following this work with
interest

References

- [CERN-Solid entry point](#)
- [CERN-Solid chat](#)
- [The PoC Project description](#)
- [The PoC Project repo](#)
- [Follow-on project](#)
- [Policy document for a CERN Solid server](#)

References historical

Past efforts to keep CERN involved in the future of the Web:

- The CERN Web Office in the 1990ies (most data missing today)
- CERN Web operations' paper and slides when the servers were numbered
- CERN-W3C collaboration 2014 proposal
- CERN-W3Ccollaboration 2017 proposal

Thank you for listening