

White Area lecture on the CERN-Solid collaboration

Maria Dimou (CERN) & Jan Schill (IT University Copenhagen)

Presentation at [the January 25th 2021 White Area at CERN](#)

Overview

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2. Why CERN should be involved
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What is Solid

- Sir Tim Berners-Lee (TimBL) announced his Solid project (Social Linked Data) in 2016.
- This Open Source platform aims to re-decentralize the Web and empower users' control over their own data.
- Solid includes standards, missing from the original Web specifications, giving back to the users:
 - *ownership* of their *data*, private, shared, and public.
 - *choice* on the *storage* where these data reside and
 - *control* over who has *access* to them.
- TimBL co-founded [inrupt](#) to implement the Solid standards.

Why CERN should be involved

- CERN is the birthplace of the Web
- Many sophisticated software projects at CERN
 - Already open source
 - Operational status (tens of thousands of users)
- Solid is here to stay - we should be more actively involved than we were with W3C.

The Solid pod

- People store their data securely in decentralized data stores called *Pods*. (*)
- Pods are like secure personal Web servers for data.
- Solid connects resources in different pods by representing all data as *Linked Data*, i.e. every piece of data gets its own HTTP URL on the Web, and we use those URLs to refer to this data.
- When data is stored in someone's pod, they control who and what can access it.
- There will be a pod demo by Jan.

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

The Solid servers

1. **Node Solid Server (NSS):** *Open Source* server by the MIT Solid team since 2016. NSS instances in the next slide.
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 rewrite NSS from scratch in [TypeScript](#).
4. **php-solid-server (PSS):** *Open Source*, good test results, under dev. The basis for the Nextcloud app that makes Nextcloud compatible with Solid.

Solid servers' interfaces

- All Solid servers have the same common interface, so they don't need to know anything about what apps are being run on them. See [more here](#)
- Two public demo/test sites for making your own pod. They both run NSS:
 - [inrupt.net](#) run by inrupt, hosted at inrupt premises, USA, data in Amazon Web Services.
 - [solidcommunity.net](#) run by the Solid organisation, hosted in the UK, data in Digital Ocean.
 - a few others people show at the [monthly Solid World Webinar](#).

Slide with input from TimBL

Solid specifications

Recently matured, they cover areas of:

- * Authentication
- * Authorisation
- * Data inter-operability
- * Testing suites

As the **Web Access Control (WAC)** gives all privileges to the user, **Access Control Policies (ACP)** are now being defined to assist newcomers.

Specs' current location: <https://solid.github.io/specification/>

Specs' future location: <https://solidproject.org/TR/>

Test suite: <https://github.com/solid/test-suite>

Solid implementations

By start-up companies and government agencies. Most engaged countries, so far, are Belgium, the Netherlands, Germany and the UK.

- UK NHS (National Health System)
- Flanders' government applications
- Belgian [Digita inox](#) (connects your different pods)
- inrupt developments - [sign-up and play](#)

Activities summarised in the [Solid newsletter](#) and reported at the [monthly Solid World Webinar](#).

The CERN-Solid code investigation project

- 1. Review Solid specifications**
- 2. Evaluate Solid implementations**
- 3. Enrich Indico with Solid principles**
4. Recommendations on Solid adoption in CERN applications
5. Document challenges, advantages, gaps
6. Presentation of proceedings

Full project description

Very comprehensive report on points 1 & 2 by Jan

GitHub: [janschill/uni-research_project](https://github.com/janschill/uni-research_project)

Proof of Concept via Indico extensions

The screenshot shows a web browser displaying an Indico event page. The browser's address bar shows the URL <https://indico.cern.ch/event/977577/>. The page header includes navigation icons, a 'Public' status indicator, the location 'Europe/Zurich', and the user 'J. Schill'. The main content area has a blue header with the event title 'CERN-Solid presentation at the December 2020 Solid World' and a '2' icon. Below the title, it lists the organizers 'Jan Schill (itu.dk), Maria Dimou (CERN)' and the event details 'Thursday 3 Dec 2020, 16:00 → 17:00 Europe/Zurich'. The 'Description' section contains text about the webinar, links to the Solid events index, the CERN-Solid code investigation project, and GitHub repositories for Indico and the CERN-Solid collaboration. A 'Contact' section provides the email maria.dimou@cern.ch. The 'Comments' section shows three comments from users Jan, Theo, and Viktoria. The footer includes the CERN logo, 'Powered by Indico v2.3.2', and links for 'Help', 'Contact', 'Terms and conditions', and 'URL Shortener'.

CERN-Solid
CERN-Solid presentation at the December 2020 Solid World 2

by Jan Schill (itu.dk) , Maria Dimou (CERN)

Thursday 3 Dec 2020, 16:00 → 17:00 Europe/Zurich

Description The talk is prepared for the December 2020 Solid World webinar.

This is a monthly event where Solid implementors share their experience.

All material and recording will be linked from [the Solid events' index](#).

The talk is about the reasons and status of [the CERN-Solid code investigation project](#).

Progress is monitored in https://github.com/janschill/uni-research_project

Indico - what is - <https://getindico.io/>

Indico - the repo - <https://github.com/indico/>

Please contact Maria Dimou for further information on [the CERN-Solid collaboration](#).

Contact maria.dimou@cern.ch

Comments Solid Login

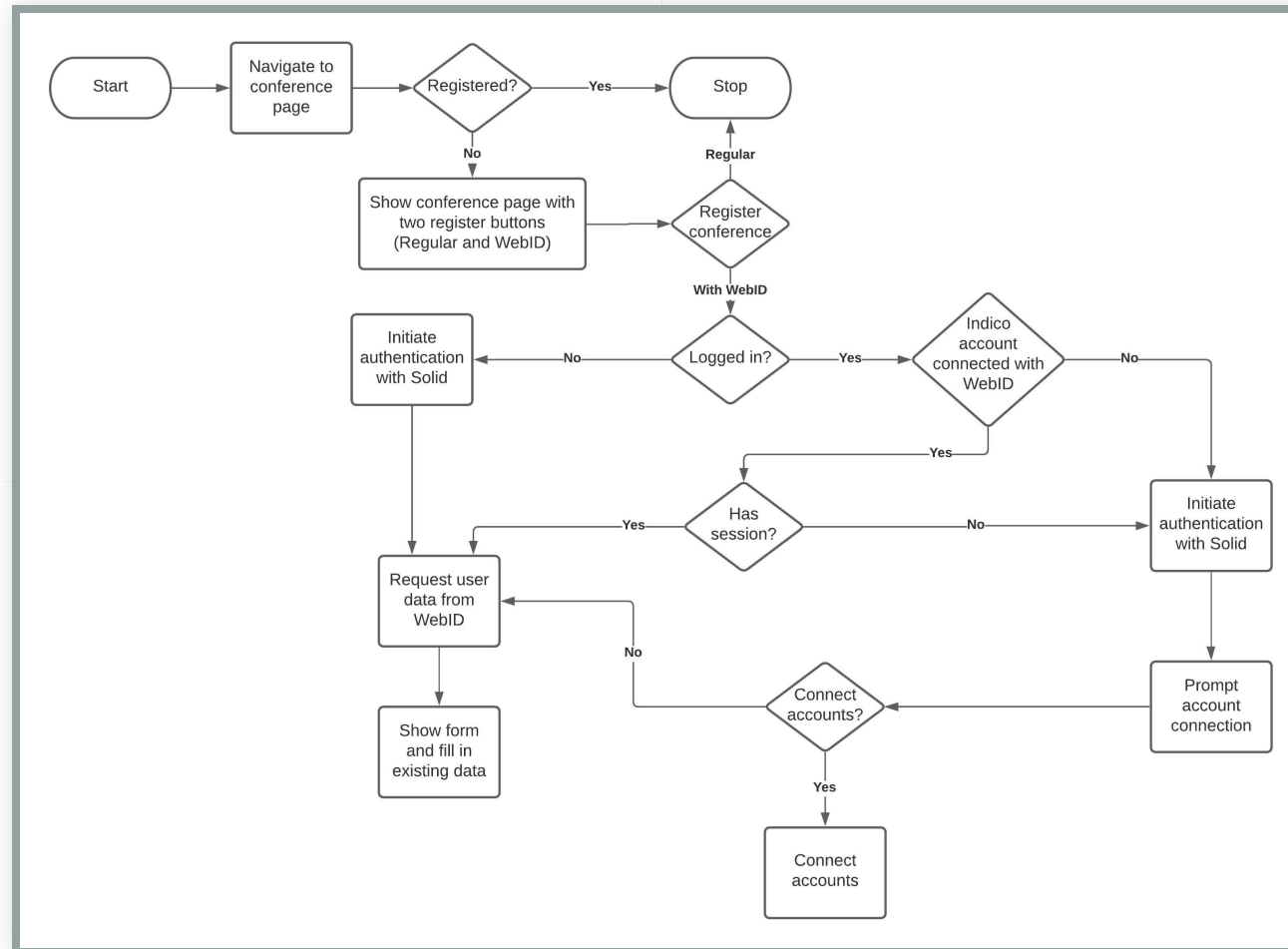
3 Dec 2020, 09:26
Jan This comments section is only a screen design of how it could look like.

2 Dec 2020, 17:13
Theo This sounds very interesting.

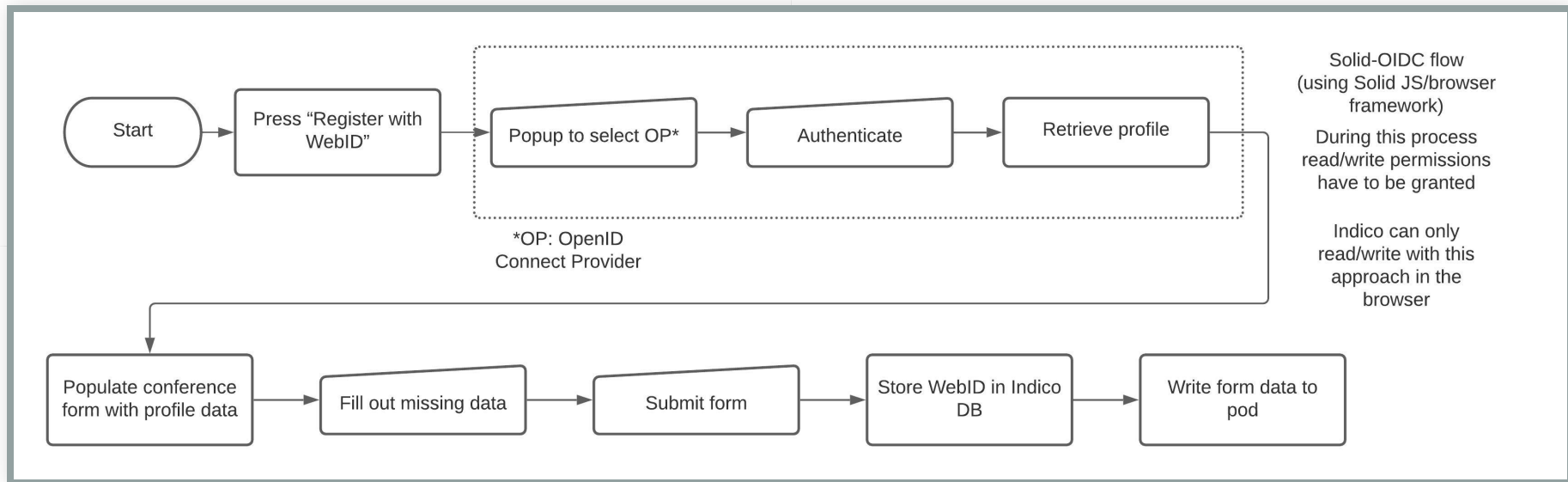
2 Dec 2020, 15:35
Viktoria Solid seems like the right direction.

Powered by [Indico v2.3.2](#) [Help](#) | [Contact](#) | [Terms and conditions](#) | [URL Shortener](#)

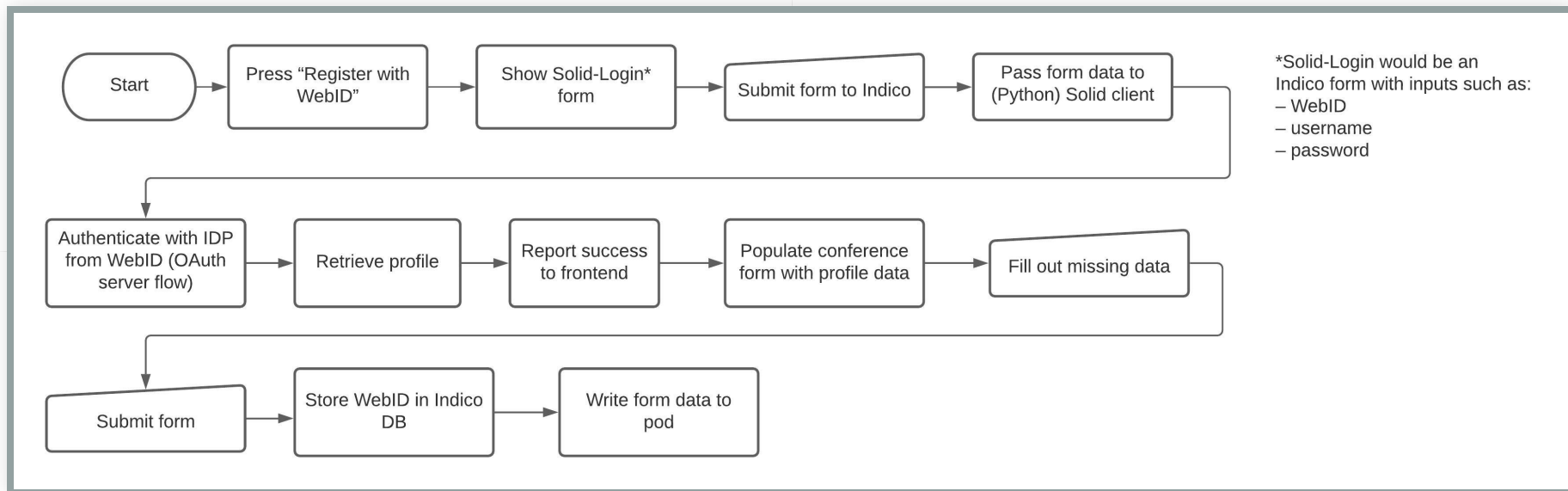
Conference Registration



Conference Registration Client-Side



Conference Registration Server-Side



How to Login/Register with a Solid Pod

1. Pick a provider: solidcommunity.net* or inrupt.net**
2. Register with **username*****, **password**, **name**, **email address**
3. Log in using the newly created WebID with username and password
4. Go to <https://podbrowser.inrupt.com/> and log in

*Hosted: *DigitalOcean (UK) , **AWS (USA)*

*WebID: ***username will be part of your WebID*

Other relevant CERN applications

Mutual benefit will derive from other PoCs with:

- The CERN *Notifications project*, unilateral, via subscription and archived.
- The *new CERN Authentication* project.
- *CS3MESH*, a pan-European cross-institution mesh that will offer data sharing/co-editing facilities, relying on the federation of different sites by using well-known APIs.
- *InvenioRDM*, a Research Data Management, open source platform for persistent paper & data registration.

Conclusion

The success of the [CERN-Solid code investigation project](#) is important:

1. For Jan's MSc thesis at [itu.dk](#) to demonstrate that the implementation works.
2. For CERN to be inspired by the PoC and embrace Solid.
 - Solid is there to stay. We should embark now!
3. For Solid to show that its principles can work in an environment of tens of thousands of users.

Thanks!

- To TimBL for always giving advice, despite the millions who contact him.
- To Michiel de Jong & Sarven Capadisli, for their answers to our frequent questions.
- To Jan Schill (from Maria) for choosing this project for his MSc thesis.
- To the CERN/IT-CDA management for approving this work.

References current

- *The Solid project web site:* <https://solidproject.org>
- *Jan's MSc Thesis description:* <https://it-student-projects.web.cern.ch/projects/cern-solid-code-investigation>
- *Thesis repo.:* https://github.com/janschill/uni-research_project
- *CERN-Solid entry point:* <https://indico.cern.ch/category/11962/>
- *CERN-Solid chat:* <https://gitter.im/cern-solid/community>

References Historical

- *The original Web proposal:* <https://www.w3.org/History/1989/proposal.html>
- *When the CERN Web was Open Source (most data missing today):* <https://weboffice.web.cern.ch/WebOffice/>
- *Past attempts to involve CERN in W3C work:*
 - *CERN-W3C 2014 proposal:* https://cern.ch/dimou/personal/CERN-W3C_Collaboration.pdf
 - *CERN-W3C 2017 proposal:* https://cern.ch/dimou/personal/CERN-W3C_Collaboration_2017_proposal.pdf