CAuth - Project Close Out Report

Proposal link: https://cardano.ideascale.com/c/cardano/idea/64585
Project number: 900140
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Project start: 1/11/2022
Project finish: 31/03/2025

List of challenge KPIs

- Creation or improvement of different Dapps, products, and integrations that provide value to the Cardano community and wider ecosystem.
- Integrations with other existing services, products, and protocols that improve the end-user experience whether that's giving the user more options or making something easier to use that benefits the wider ecosystem.

CAuth ideally fits into both of these KPIs as it is part product (a library and demo apps) and integration (provides integration with existing applications via OAuth protocol).

We allow existing Web2 applications to use Cardano blockchain as authentication mechanism (integration) via OAuth bridge (product)

We also enable new applications to use our library to use NFTs as

List of project KPIs

Our KPIs were our project deliverables:
- Client library code and binaries
- Backend library code and binaries
- Oauth bridge code and binaries
- dApp code and binaries
- Documentation
- Security audit results
- Promotional materials (articles, video, etc.)

All, but security audit have been delivered via github repository. The security audit is discussed in the video. The documentation is also available via www.cauth.org

Key achievements

We were able to map OAuth login process onto blockchain.
We produced example applications for each of the milestones we set ourselves.
We created a base of code and documentation that can be useful to other developers and integrators.

Key learnings

- Always have a second technical member of the team. Having only one member means that checking something and making sure it works takes much longer, especially with such a complicated and sensitive topic like authentication.
- Cardano tooling has evolved significantly implementing solutions such as CAuth would have been much harder earlier. We have used experience and reports from past projects as well as libraries to and infrastructure (e.g. Blockfrost) to externalize parts of complexity.
- Complex projects such as this one are very hard to plan ahead. One needs to schedule time-off in such projects, where you disconnect and digest what you have learned in one iteration.
- Maintaining motivation and consistency in remote projects, where you don't meet other people, is hard. Unless you set out with a project that has a single person from the get go.
- Don't try to build a house and run a complicated technical project at the same times.

Next steps for the product or service

I am thinking of updating the solution to support passkeys. Tooling could be improved. Improve packaging of the project. There should be some standard for Authentication NFTs, some mapping of DIDs to NFTs. Possibility of storing some data on a privacy preserving blockchain such as Midnight would help significantly. I also had an idea of leveraging Cardano blockchain and Web of Trust. This would fit nicely with distributed character of project and allow building more complex trust networks. Suffice to say there are plenty of things to work on in this domain.

Final thoughts

This project was challenging on multiple levels. Mapping a distributed authentication process onto blockchain was a significant challenge. Another was actually implementing this process. It is important not to underestimate complexity of such projects. Although significantly delayed we were able to deliver something useful and important.

Links

- Documentation (including demo site) - https://www.cauth.org/
- Project Catalyst Website - https://projectcatalyst.io/funds/9/dapps-products-and-integrations/login-with-cardano-wallet-cauth

- Deliverables public repository - https://github.com/Project-Catalyst/cauth-deliverables
- More links and documents can be found on the website and in documents in the repository (e.g. https://www.cauth.org/docs/further-reading/)
- Project Close Out Video - https://youtu.be/TeBmDE5V3vI