

Towards a Scalable Digital Identity

Quinten Stokkink
Distributed Systems

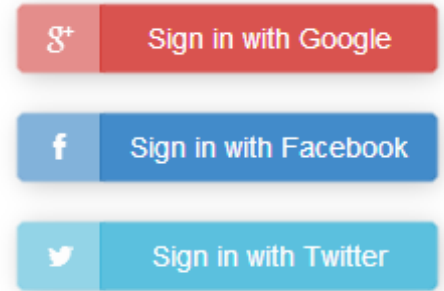


Outline

- Current Digital Identity
- Self-Sovereign Identity?
- Our work



Current Digital Identity



Digital schizophrenia:

- Companies have their own authentication.
- Companies have their own database.
- This **does not scale** beyond their own identity silo's*.

**Unless we trust a third party with all our data.*

Current Digital Identity

Annoying consequences:

- Many usernames/passwords
- Large amount of duplication of identity data

Scary consequences:

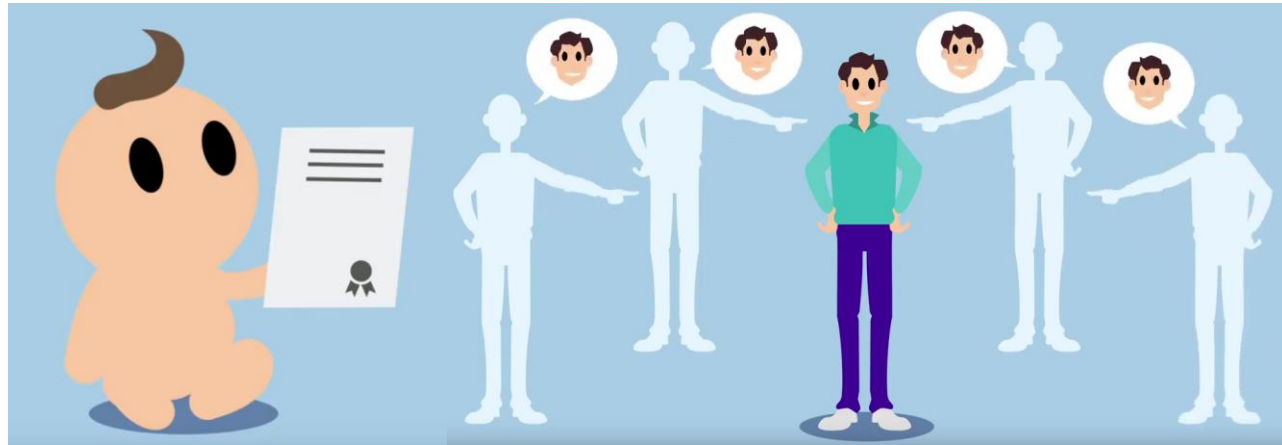
- You don't own your phone number
- Your passport is borrowed from the state



What is Self-Sovereign Identity?

A new breakthrough solution?

- You are the source of your own identity data
- You grant access to your data

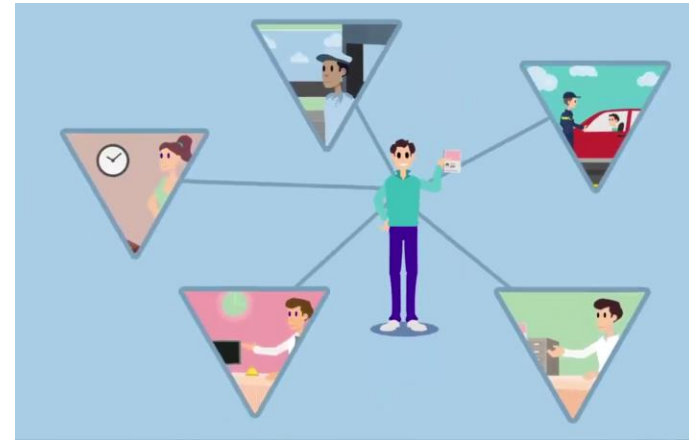


Self-Sovereign Identity



The value proposition:

- Collect evidence (attestation) from others
- No single trusted third party *required* (it scales!)
- Like PGP web of trust



Beyond theory

Implemented prototype with:

- **National Office for Identity Data**
- **IDEMIA**

Only known *passport grade*
Self-Sovereign digital identity
implemented in the world.



Legal matters

Achieving passport-level identity:

- By authorized professionals
- Through certified procedures
- Linking the citizen to the device (with biometry)

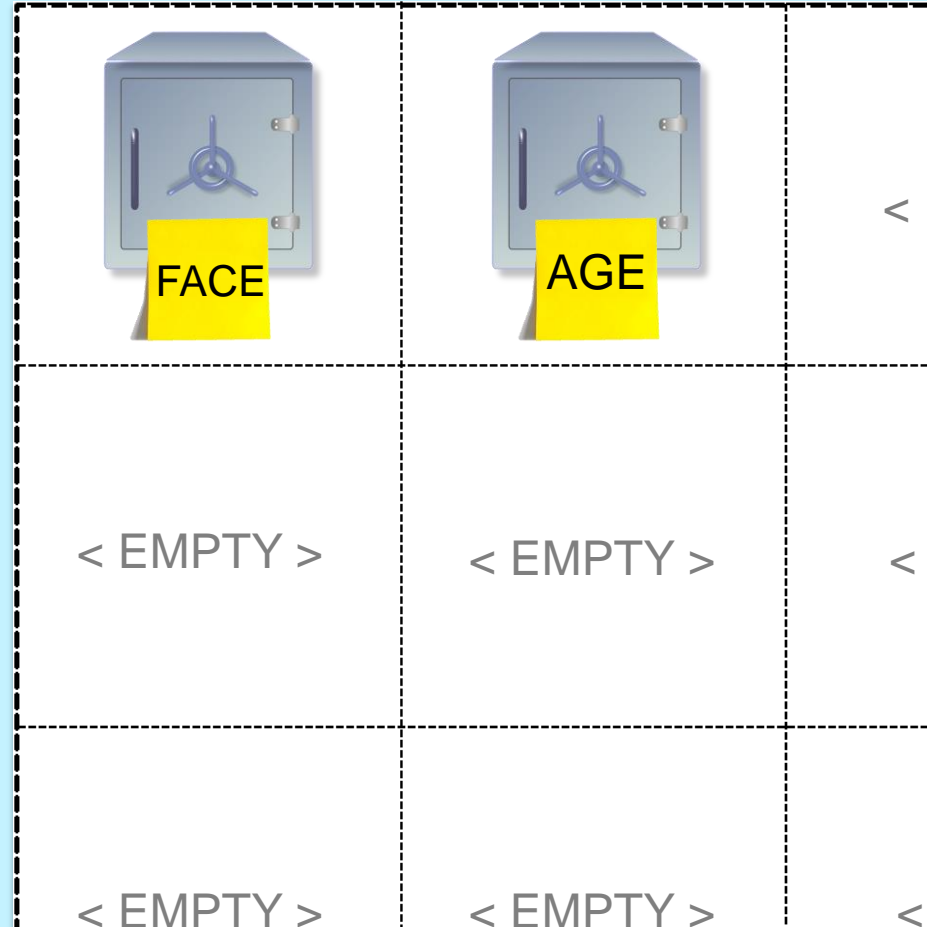


The Architecture

Transferring identity data:

- Free and open standard
- Any data
- Any business logic

My Identity:



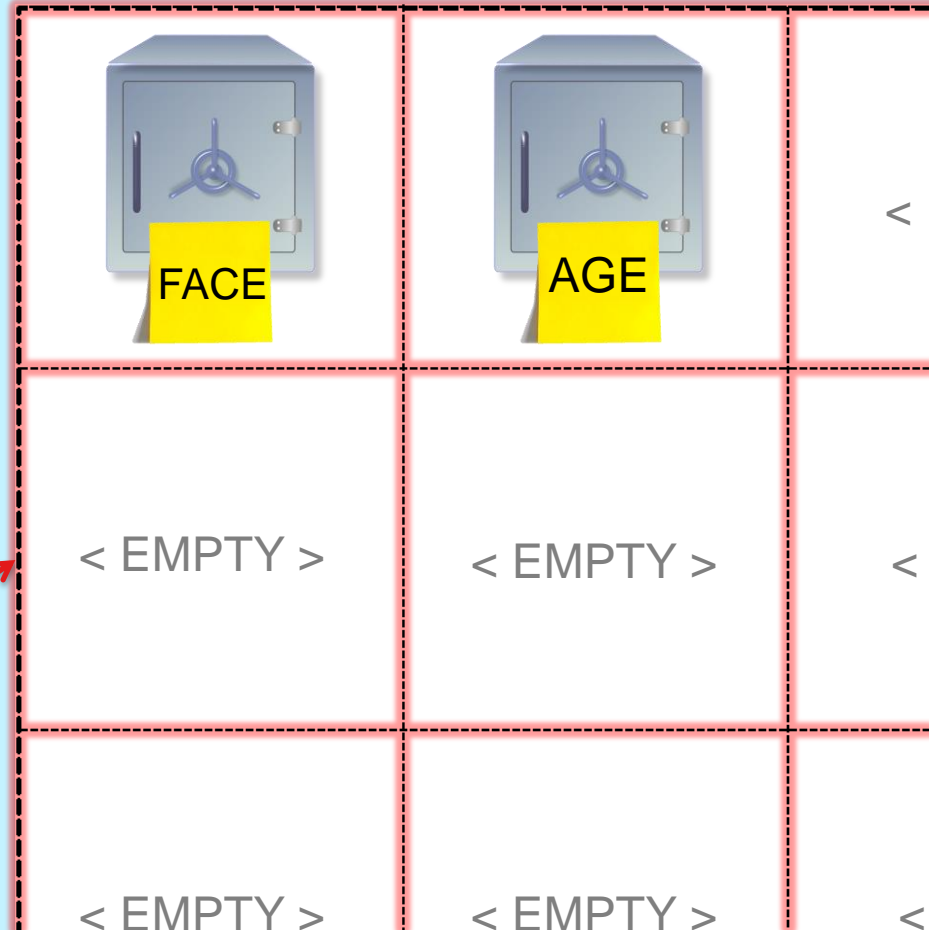
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Carrier made by TU Delft

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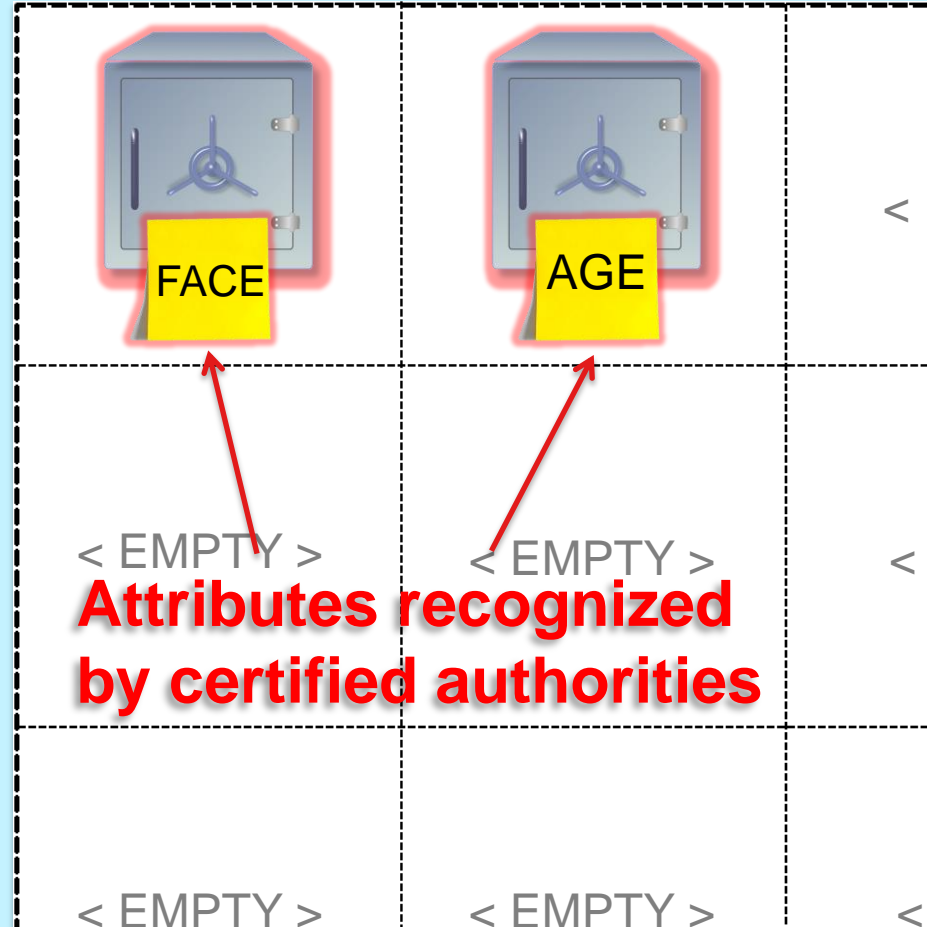


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My Identity:



The Future

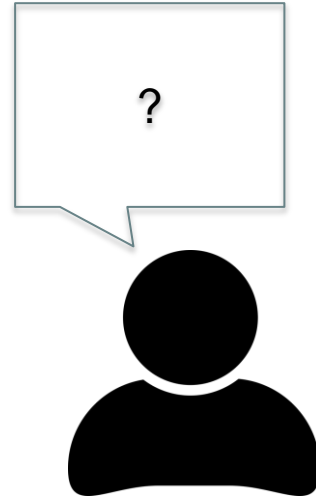
New challenges:

- Semantics
- Standardization
- Too much power

The Future

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- **Semantics**
- Standardization
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The Future

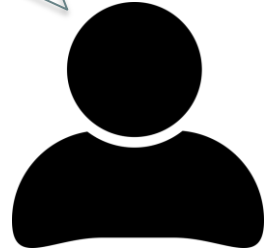
New challenges:

- Semantics
- **Standardization**
- Too much power

I only have
APPL_FACE_v5



Do you have
TU_ID_v120?



The Future

New challenges:

- Semantics
- Standardization
- **Too much power**

Ok, sure!



I'll give you \$5 for all of your info.



The Future

Benefits of a scalable identity:

- Free and open market for identity data
- Free and open market for authentication mechanisms
- Data minimization (privacy) for citizens
- Dramatic operating cost reduction
- Decentralized ecosystems

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