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Apr 23rd, 9:00 AM

Self-Sovereign Digital Identities

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Ahmed, Maryam M.; Shrestha, Bijayata; and Ivanov, Nick, "Self-Sovereign Digital Identities" (2024). STEM Student Research Symposium Posters. 3.

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Department of Computer Science

Self-Sovereign Digital Identities

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Your Online Identity Is Not Really Yours



Today, internet giants control our digital identities, limiting control and privacy. The dominance of Internet giants in controlling digital identities poses significant challenges to user control and privacy. These companies amass vast amounts of data from various sources, including online interactions, browsing behavior, and personal information shared on their platforms.

Self-Sovereign Digital Identity (SSDI)



Self-sovereign digital identities, or SSDIs, empower individuals with control over their online identity information. This control encompasses key aspects such as ownership, security, privacy, and portability.

Why Self-Sovereign Identity Matters

- Control: You choose what and when to share
- Privacy: Minimize data exposure
- Efficiency: No redundant forms, faster logins
- Security: Protection against identity fraud

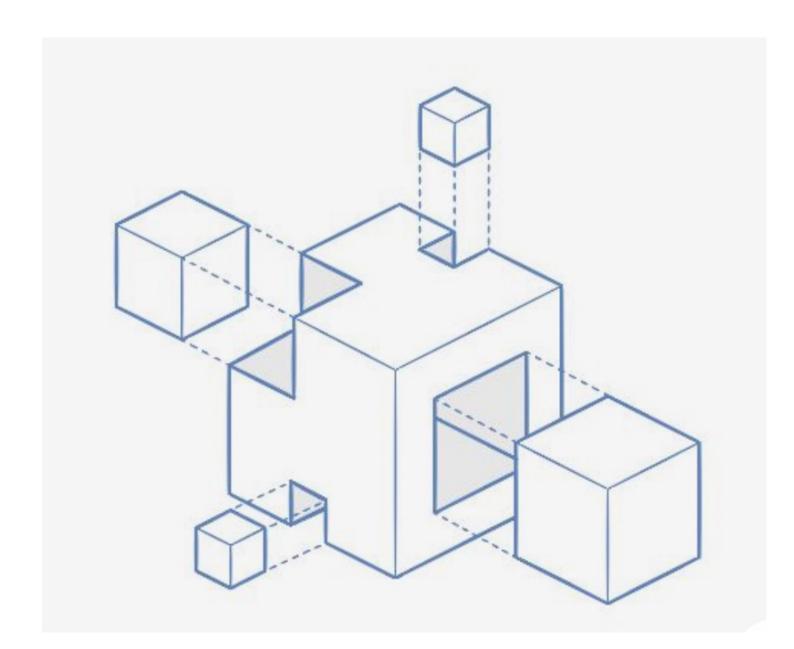
A New World of Digital Trust

SSDI enables simplified, secure online interactions for everything from everyday transactions to major life events.

Real life examples:

- University application
- Job search
- Banking sector
- Electronic voting

Building Blocks of SSDI

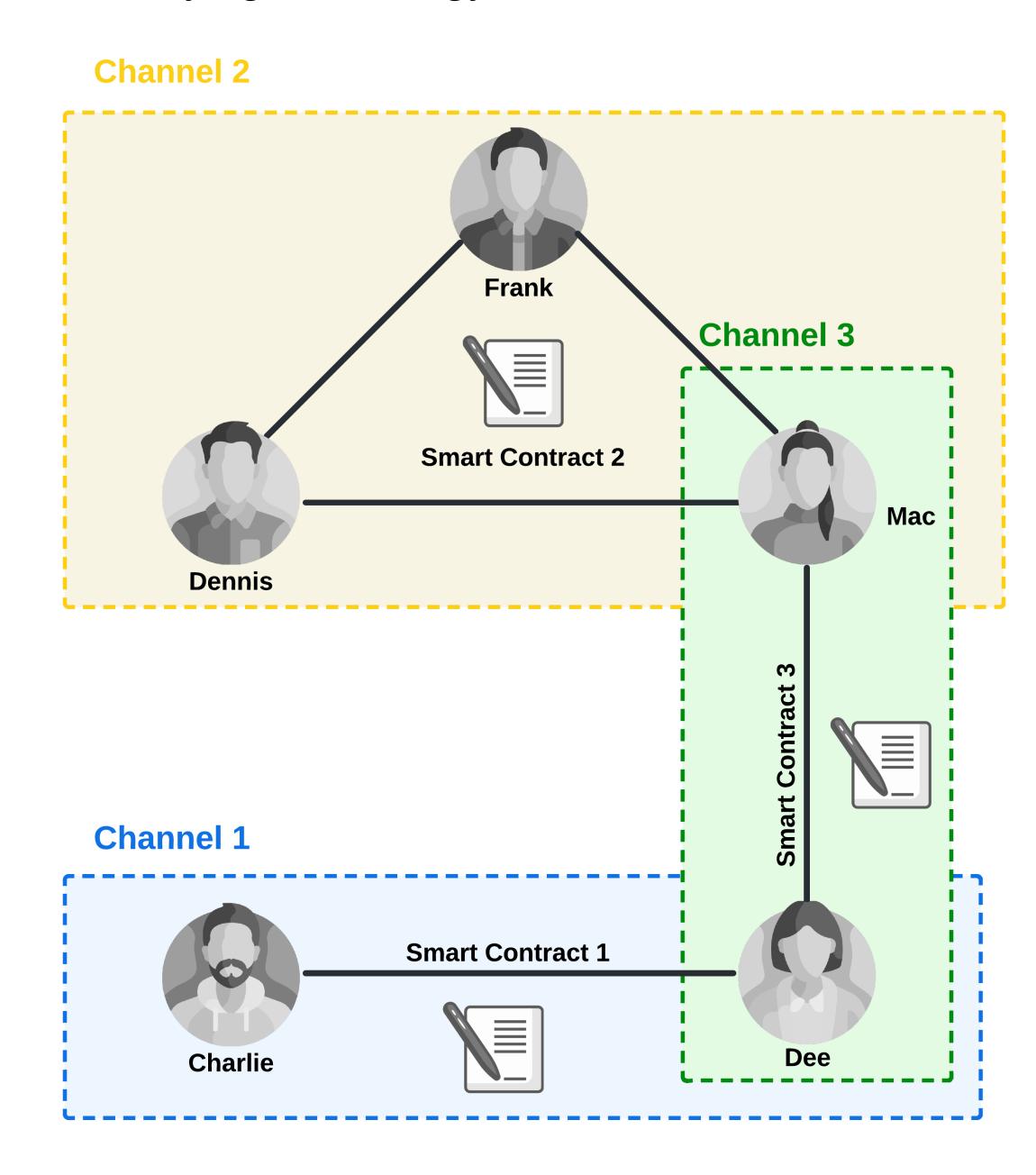


- Decentralized Identifiers (DIDs): Your unique digital address
- Verifiable Credentials (VCs): Digital certificates about you (issued by trusted sources, like your university or government)
- Wallet: A secure app where you store and manage your DIDs and VCs

No more dependency on big companies – you decide what you share and with whom.

Sans-Chain Smart Contracts

Sans-chain smart contracts aim to execute contractual logic without being directly tied to the structure of a blockchain like Ethereum or Solana. The main emphasis is on the self-executing code and the agreed-upon rules between the participants rather than the underlying technology.



The diagram shows three channels, each with two participants.

Channels: The diagram depicts three channels labeled "Channel 1", "Channel 2", and "Channel 3". Each channel represents a separate agreement between two parties.

Participants: Each channel has two participants on either side. The participants vary across the channels. For instance, in "Channel 1" the participants are named "Charlie" and "Dee".

Smart Contracts: Each channel has its own smart contract, facilitating the interaction between participants, securing agreements between different parties.