Data Access Management & Control on DOSNs
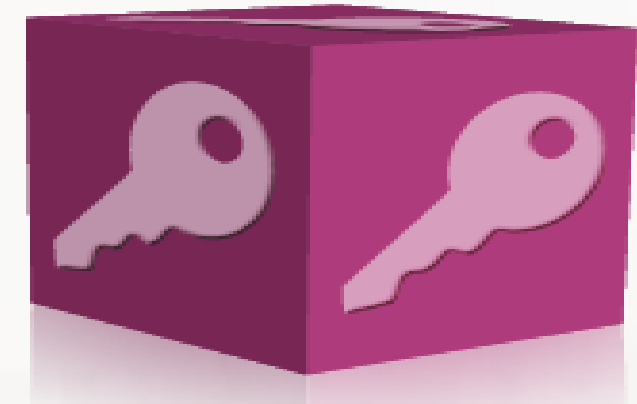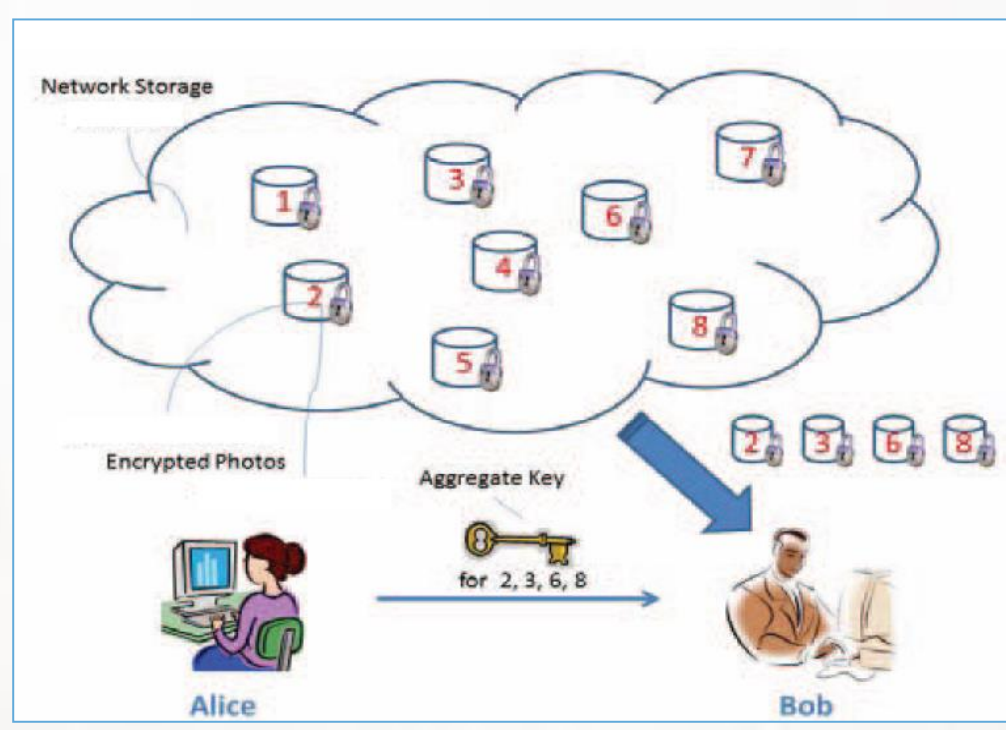## Can Bitcoin Protocol bring its magic in?

Leila Bahri – Amira Soliman
Leila.Bahri@uninsubria.it _ aaeh@kth.se

Insubria University– KTH University

Data Access Management on DOSNs

- Social data access control requires fine granularity
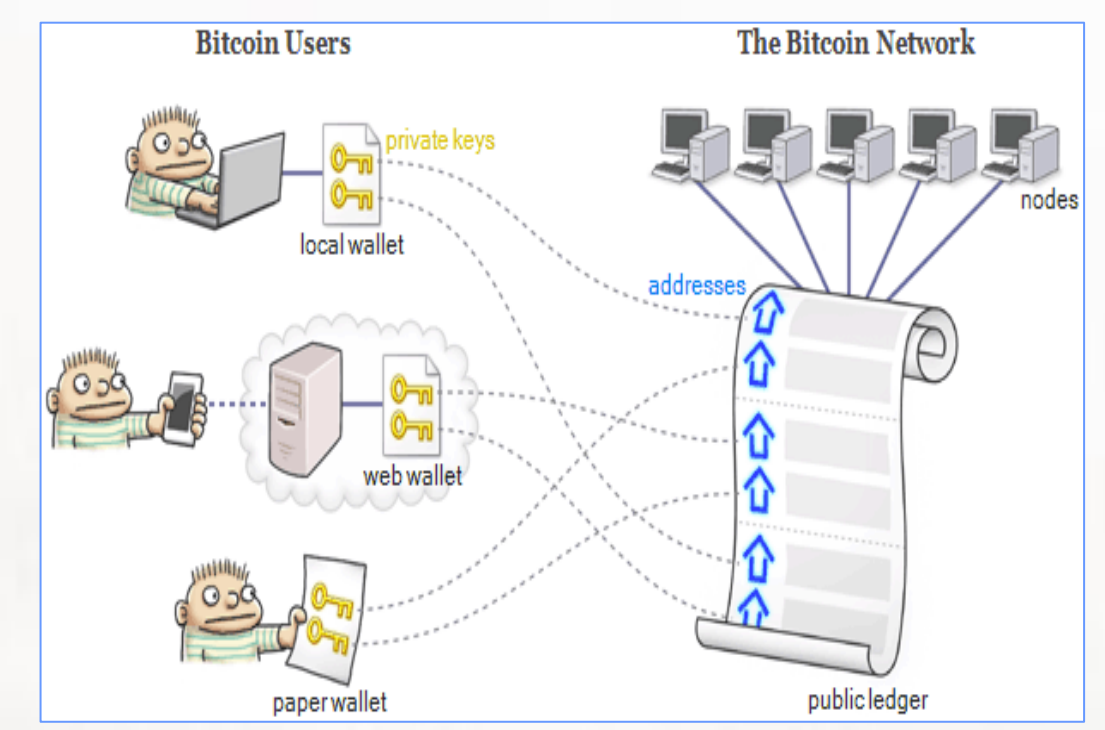- Encrypt-it-all is strong but is not flexible

Bitcoin's Network

- Global public transactions chain
- Collaborative proof of work
- Honest majority
- Flexible given collaboration
  BUT
- Might suffer under large-scale transactions

Approach

- Use proof-of-work and community consensus to regulate fine grained access control in DOSNs

  - Map social-BitCoin communities to access-custodians

  - Use majority voting/agreement to validate access requests based on the owners' access policies

Access-Custodian Communities
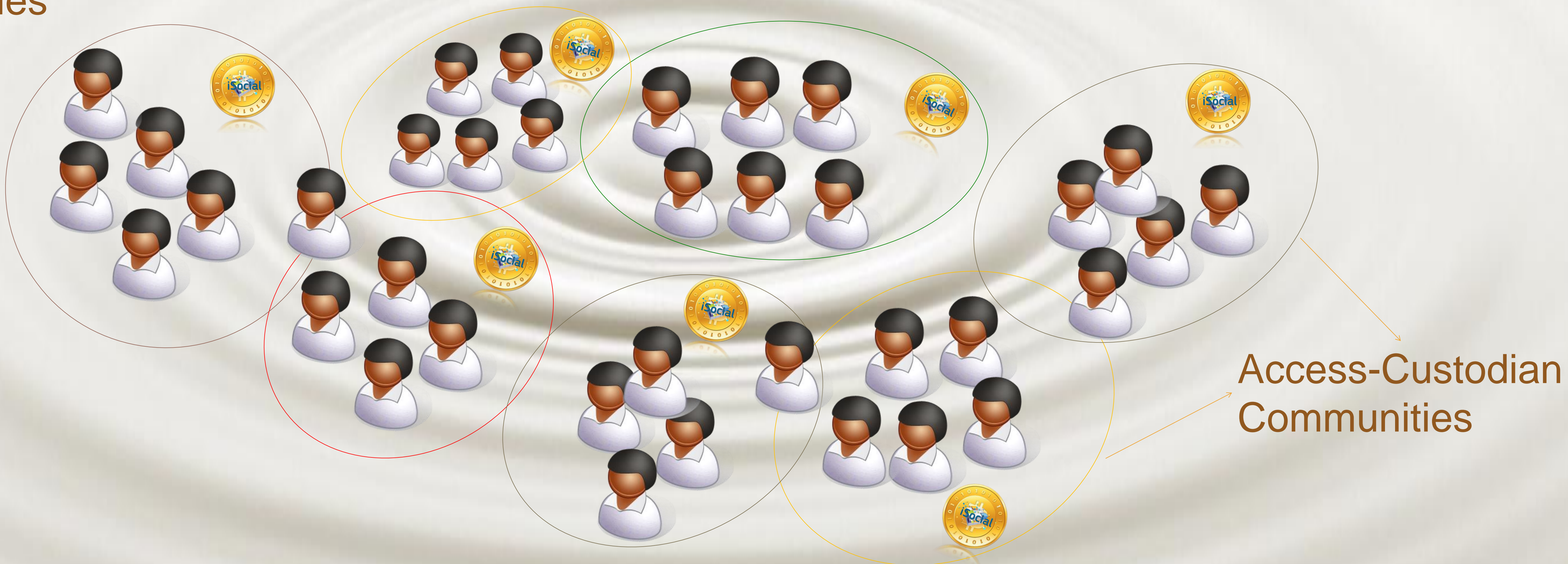
Challenges

- Finding access-custodian communities that would orchestrate nodes cross-membership

- Preserve privacy of access control policies in the public ledger

- Ensure granularity access control with least encryption cost

- Determine the community concerned per request

- Deal with malicious votes

iSocial