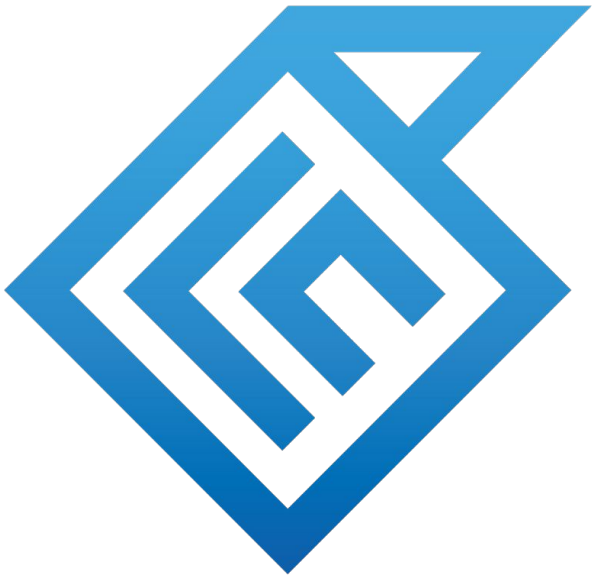

LibChain

Open, Verifiable and Anonymous Access Management

Juan Cabello, Gerrit Janßen, Peter Janacik, Tim Jungnickel and Alexander Mühle

About Me

LibChain

Tim Jungnickel

Ph.D. student (Computer Science)

TU Berlin (Germany)

- 35’000 students
- 8’000 staff
- 339 chairs / professors

Elsevier + Berlin

LibChain

Friday, 30. June 2017

Berlin Universities Demand Fair Prices and Free Access to Information

Freie Universität Berlin, Humboldt-Universität zu Berlin, Technische Universität Berlin, and Charité – Universitätsmedizin Berlin are canceling their contract with the international publisher Elsevier. They are demanding fair prices and free access to knowledge.

- Berlin universities discontinue the purchase of Elsevier services due to overly expensive (and unfair) subscription models.

Elsevier + Berlin

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What this talk is about:

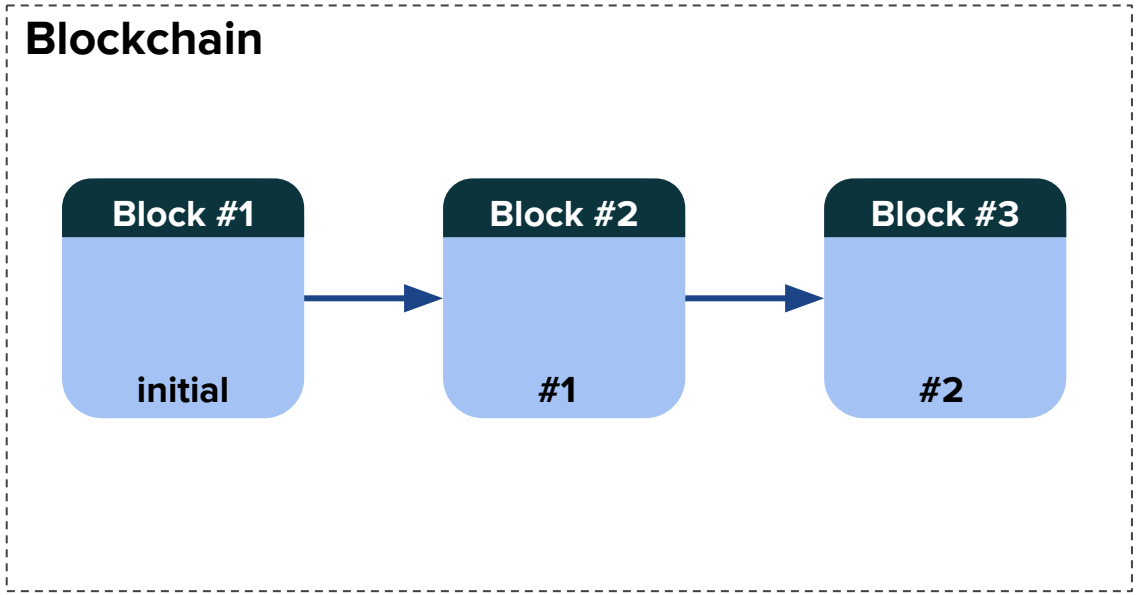
➔ *Introduction to the Blockchain technology*

➔ *A library ecosystem based on Blockchain technology (LibChain)*

➔ *Discussion: emerging billing models and OA opportunities*

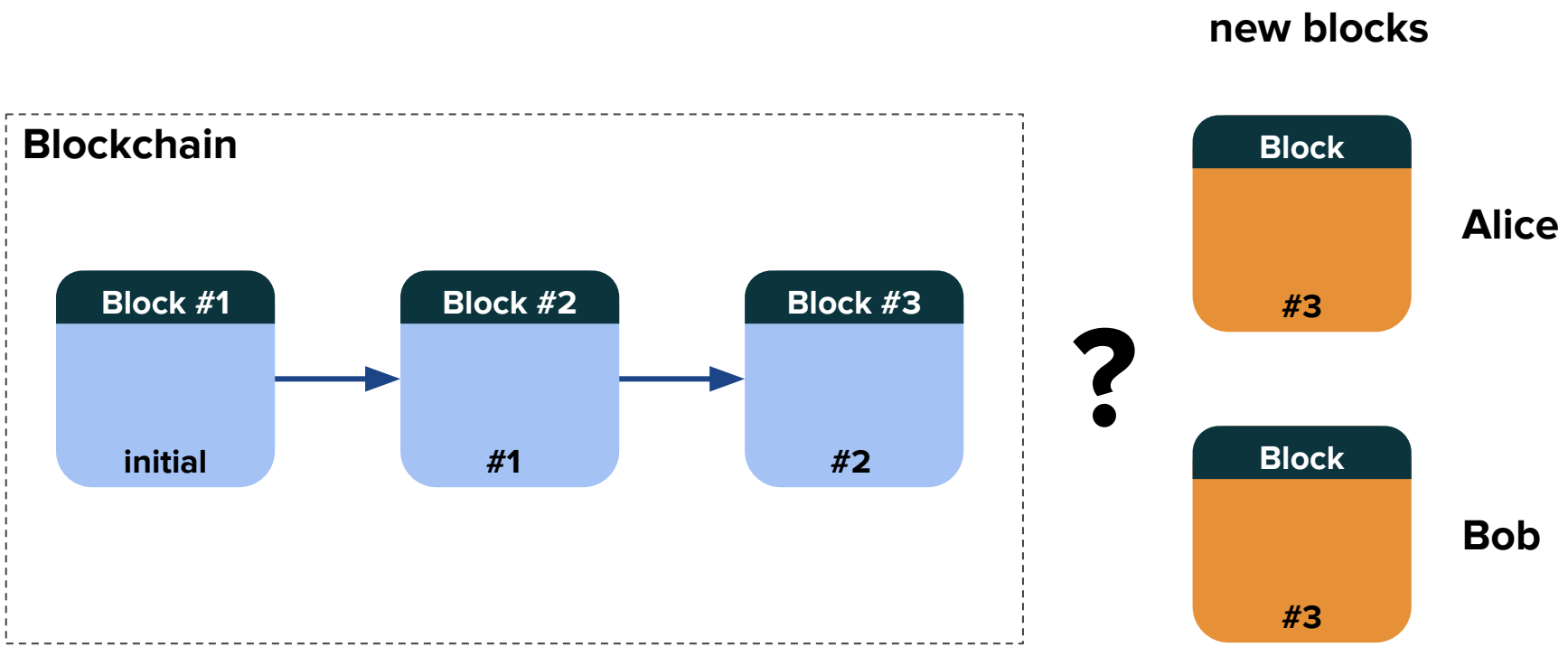
The Blockchain

LibChain



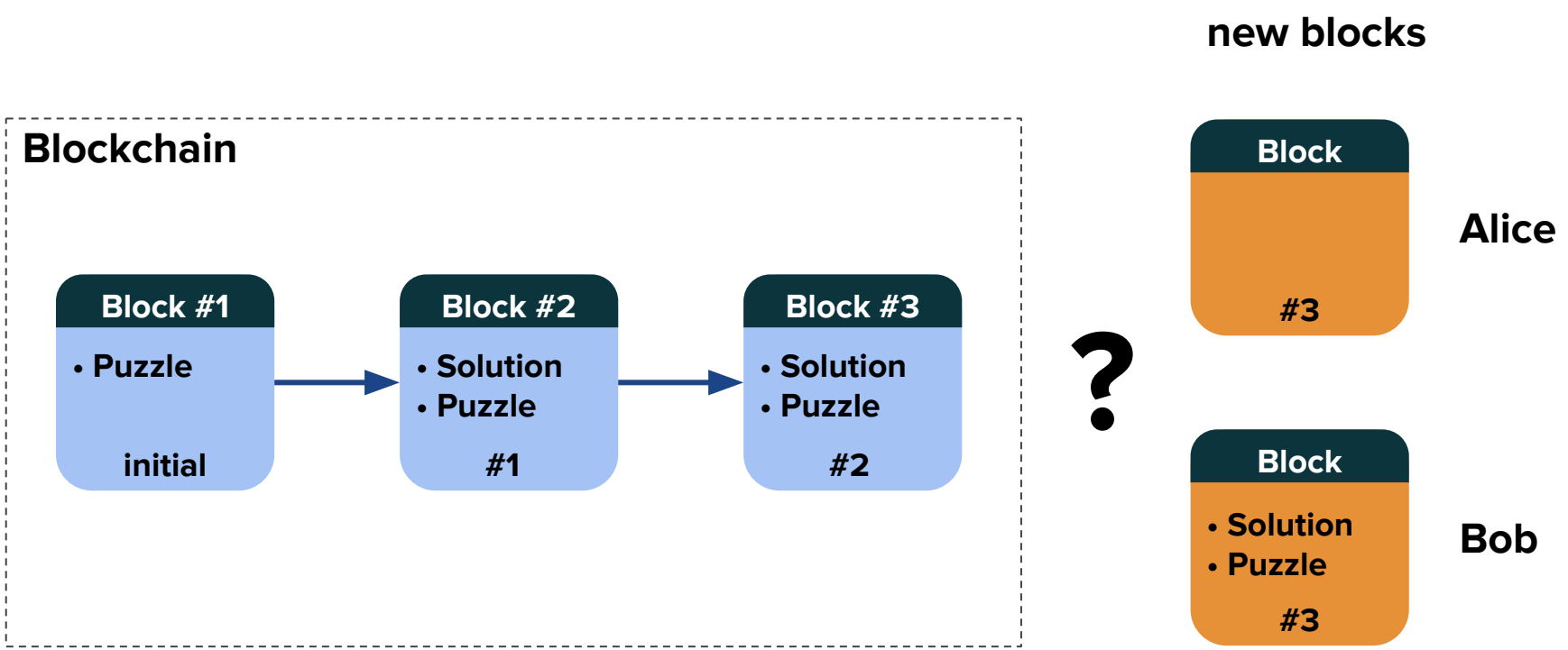
The Blockchain Challenge

LibChain



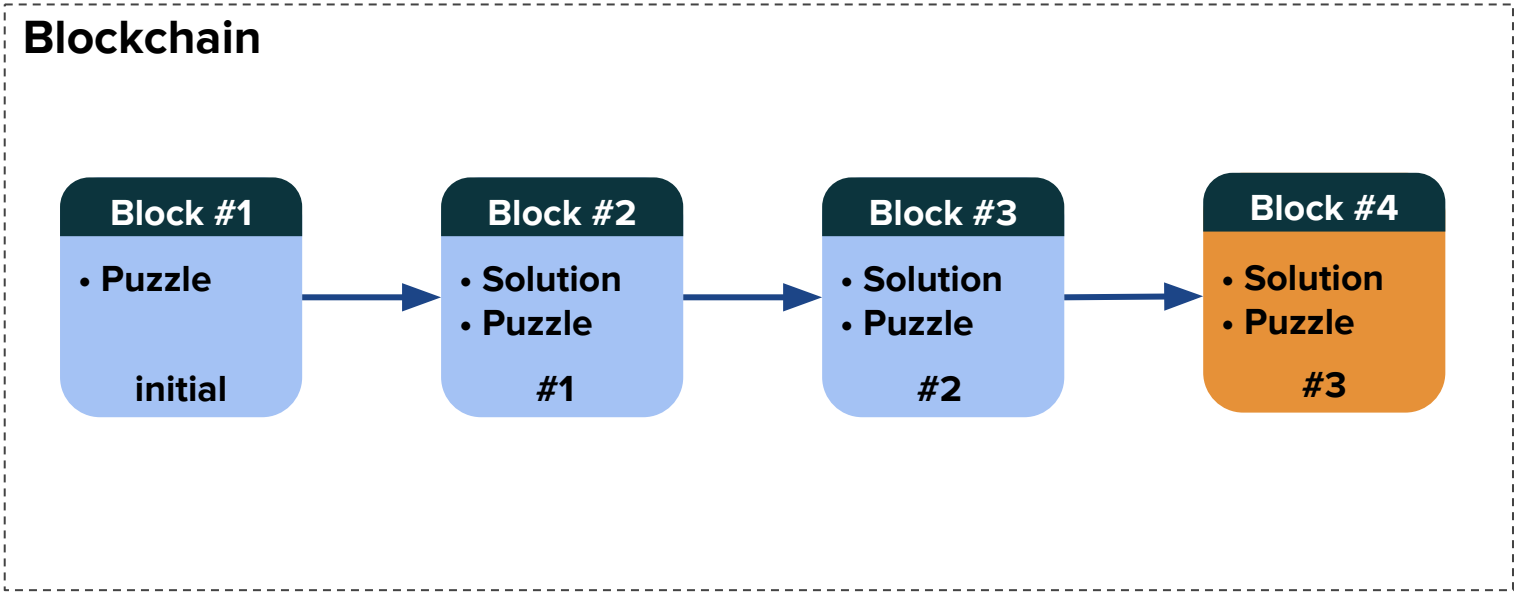
The Blockchain Challenge

LibChain



The Blockchain Challenge

LibChain



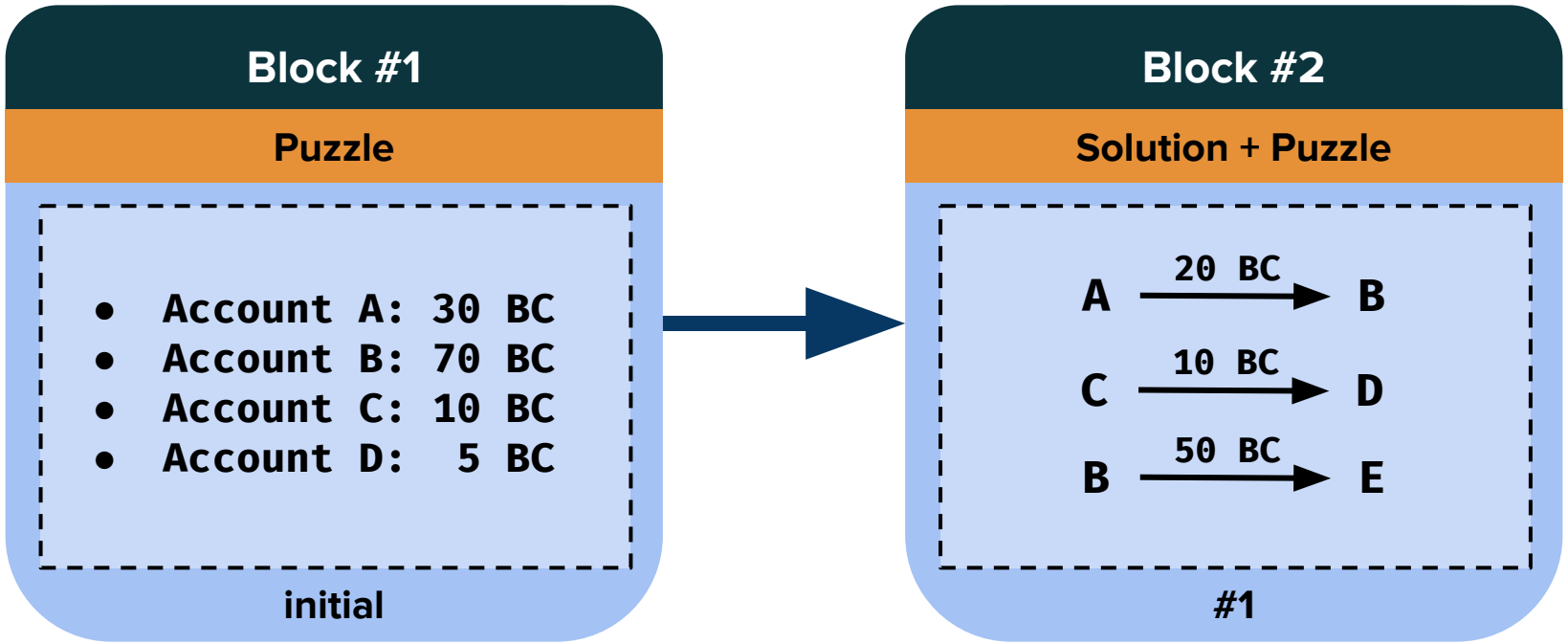
Bitcoin

LibChain

- The most famous cryptocurrency network
- 1 BC = 2300 €
- Power consumption of a small country

Bitcoin

LibChain



Ethereum

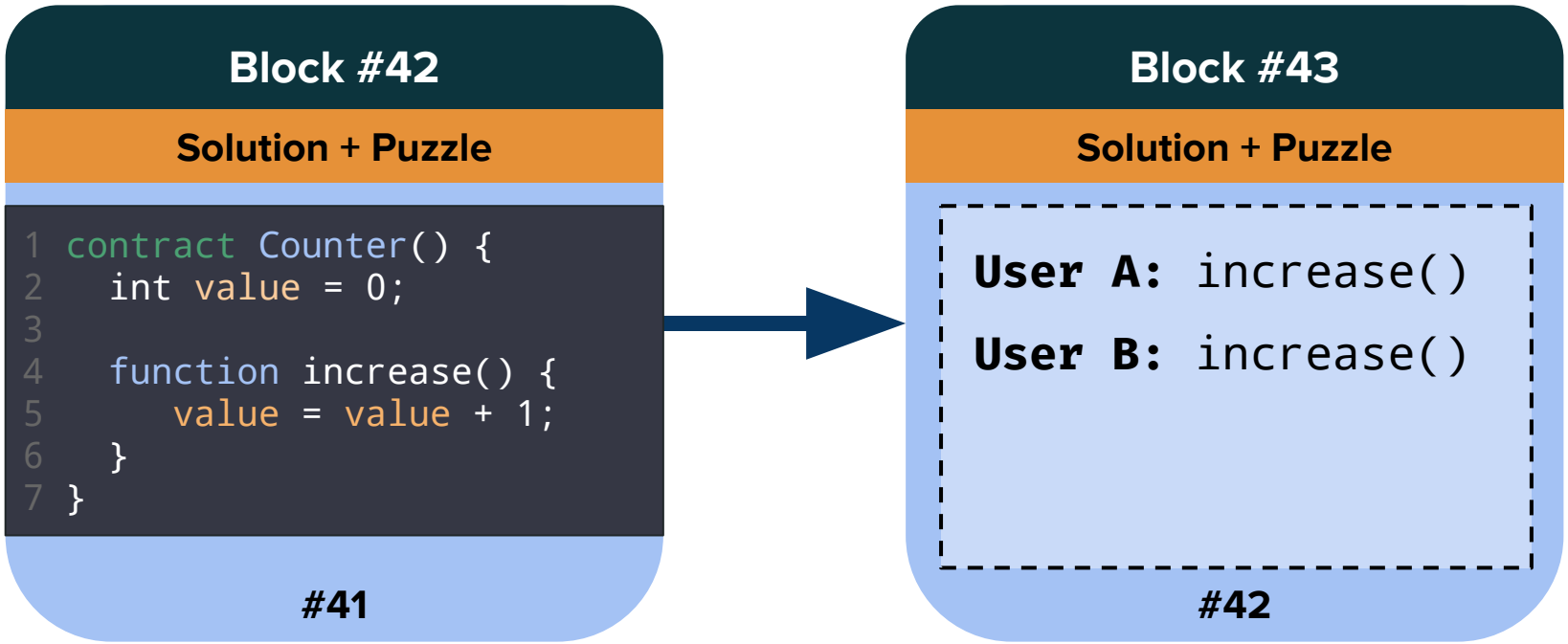
LibChain

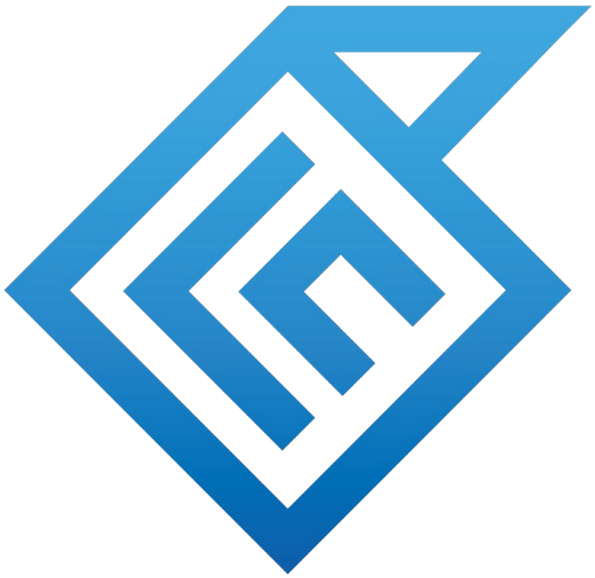
- More general than bitcoin
- Developers can implement their own application logic
- Transactions are payed with *gas*

ethereum.org

Ethereum

LibChain

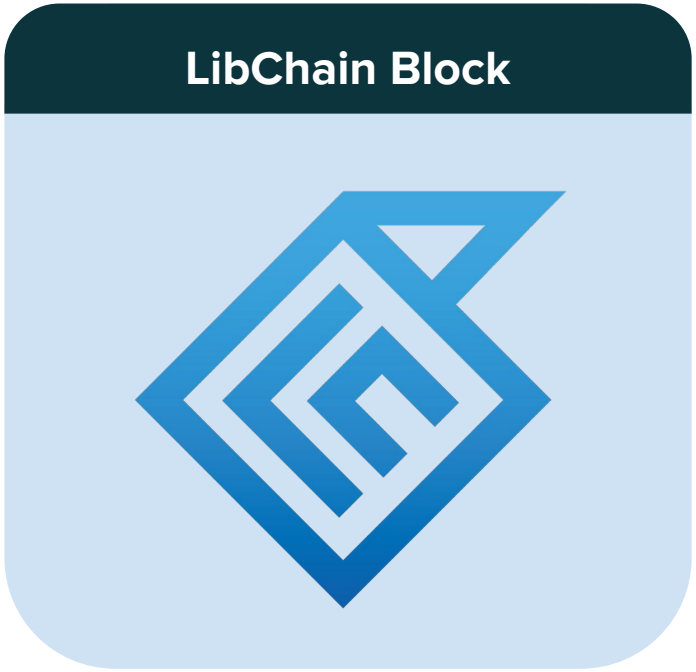




LibChain

The Blockchain Library

LibChain

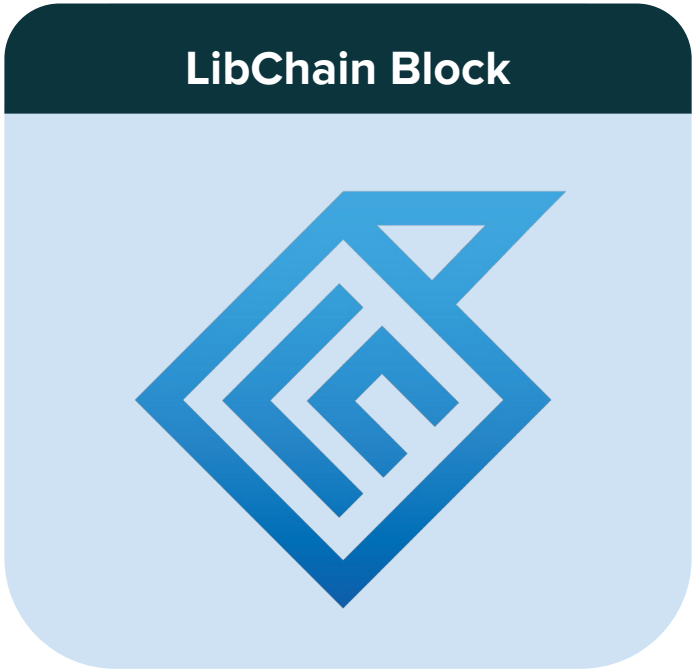


Blockchain Library Features:

- *create* / *delete* user
- *add* / *remove* inventory
- *borrow* / *return* publications

The Blockchain Library

LibChain



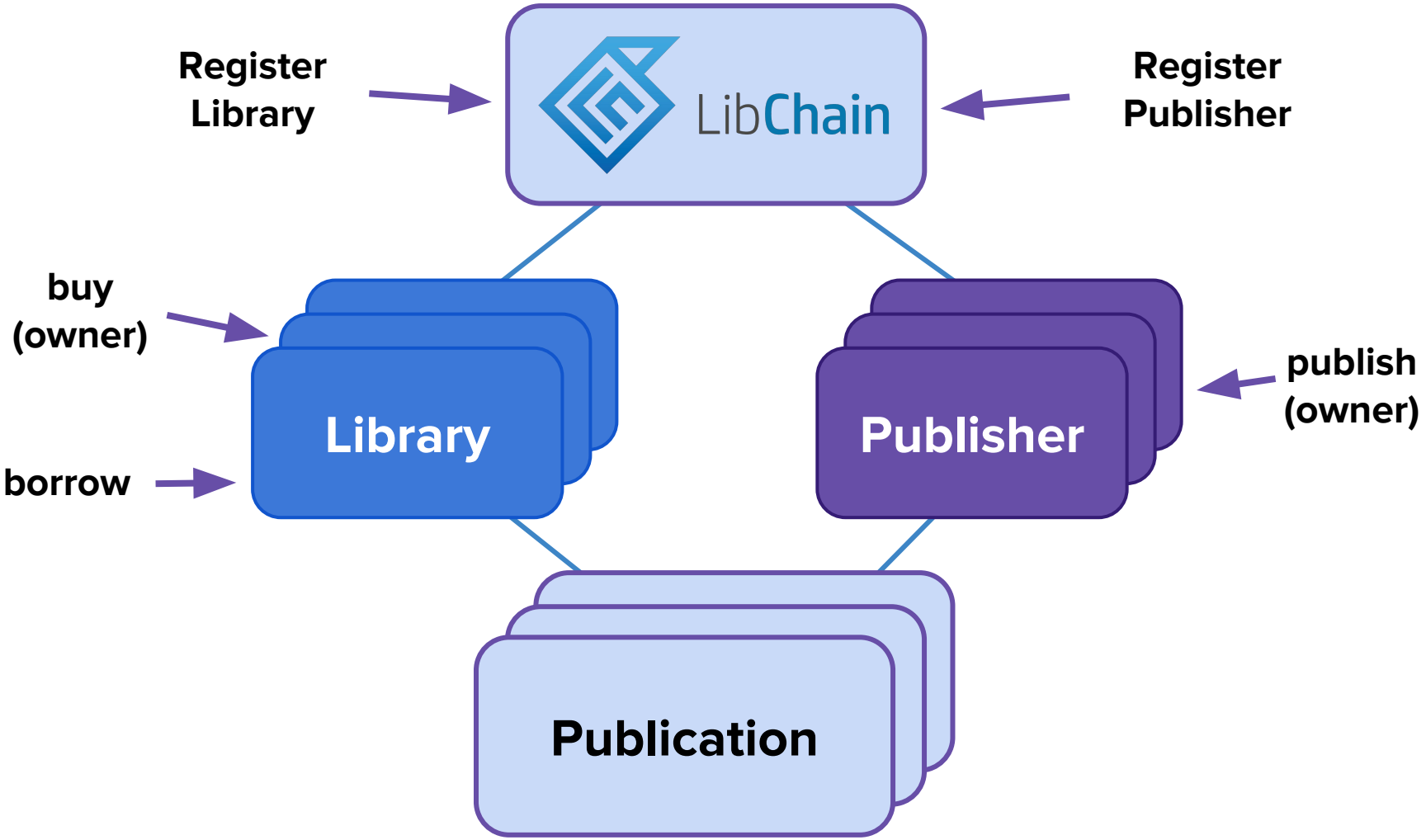
Blockchain Library Features:

- *create* / *delete* user
- *add* / *remove* inventory
- *borrow* / *return* publications

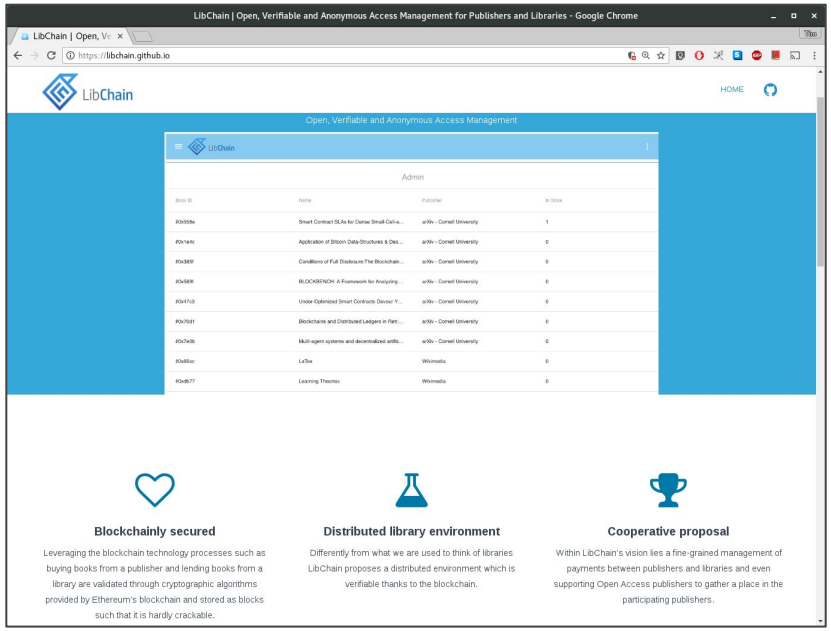
Blockchain Publisher Features:

- *publish* books, journals etc.

The LibChain Universe



LibChain Tools



http://libchain.github.io

Blockchain Application

- Smart Contracts for essential library functions on Ethereum
- Secure, distributed & trusted

LibChain Library Client

- Robust Website (based on React)

LibChain Publisher Client

- Robust Website (based on React)
- **No** DRM

What can we do with it?

LibChain

1

Enable a pay per use model for digital publications.

- Trusted usage records based on Blockchain transactions

2

Reliable metrics for Open Access publications

- Anonymous but trusted usage metrics, even for *untrusted* publishers

3

Interlibrary rentals of digital publications

- Secure borrowing from a foreign and *untrusted* library

4

Rentals of a printed publication from another user

A Remark on Copyright

Conclusion

LibChain

Summary:

- ➔ *Introduction to the Blockchain technology*
- ➔ *LibChain: a Blockchain based Library ecosystem*
- ➔ *Discussed the opportunities of LibChain for Libraries and Publishers*

Conclusion

LibChain

Summary:

➔ *Introduction to the Blockchain technology*

➔ *LibChain: a Blockchain based Library ecosystem*

➔ *Discussed the opportunities of LibChain for Libraries and Publishers*

Technical Challenges

- Small number of possible transactions
- High costs for executing a transaction

Copyright Challenges

- Transfer a digital publication without copying it
- Enable a user friendly model to rent digital publications

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