

Radical Markets and the Data Economy

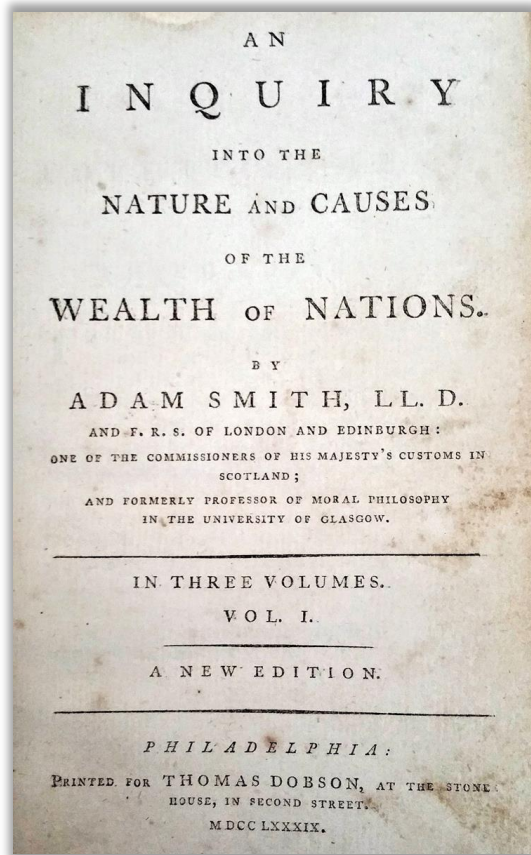
@oceanprotocol

Trent McConaghy

Slides: trent.st/content/rxc.pdf



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Radical Markets & Prosperity

- Adam Smith was a radical in his day
- Rather than following Smith's *specific* ideas...
- Follow Smith's *philosophy*: rethink property & incentives for the **prosperity** of society



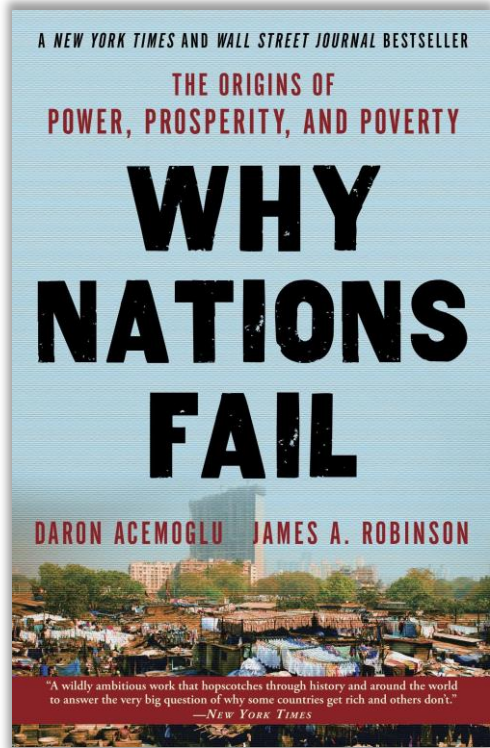
Differences in Prosperity



VS



Differences in Prosperity (2)



Ethical choice
↓
Incentive choice
↓
Outcome

Exclusive vs inclusive govt policy

Via economic institutions

Prosperity of the society

Let's get Radical: (Re)Wire economic institutions with blockchain



Let's get Radical (2): Rewire *money economy* with blockchain

**Opaque, Power
Concentrated**

**Transparent,
Permissionless**





Data

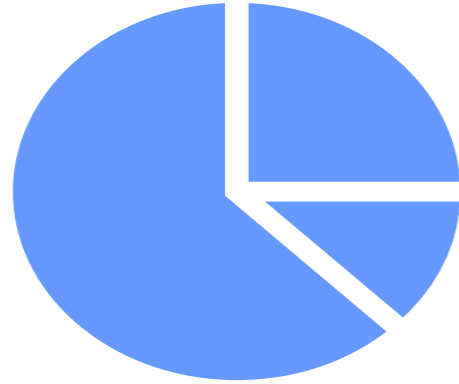
The
Economist

The world's most valuable resource

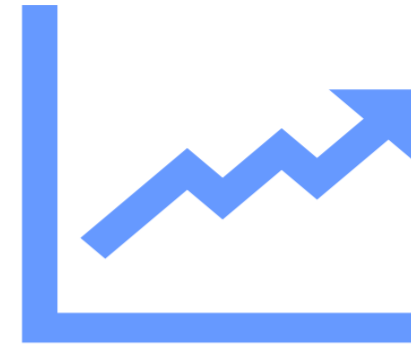


Data and the new rules
of competition

World Bank: “Digital Economy is a Data Driven Economy”



In 2016, the global Digital Economy was worth \$11.5 trillion, 15.5% of the world's GDP.



It is expected to reach 25% of the world's GDP in less than a decade.

Let's get Radical (3): Rewire *data economy* with blockchain

**Opaque, Power
Concentrated**

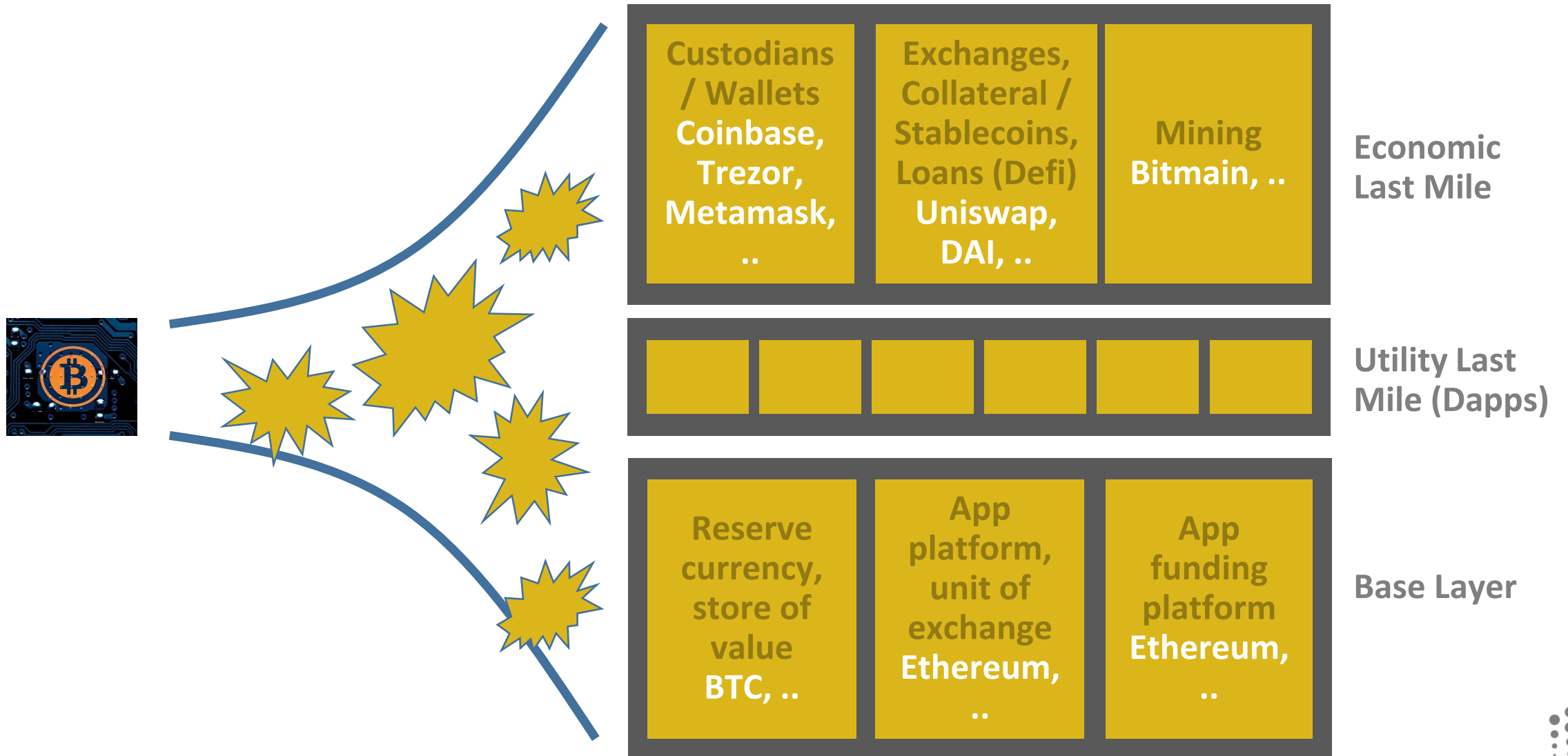
**Transparent,
Permissionless**



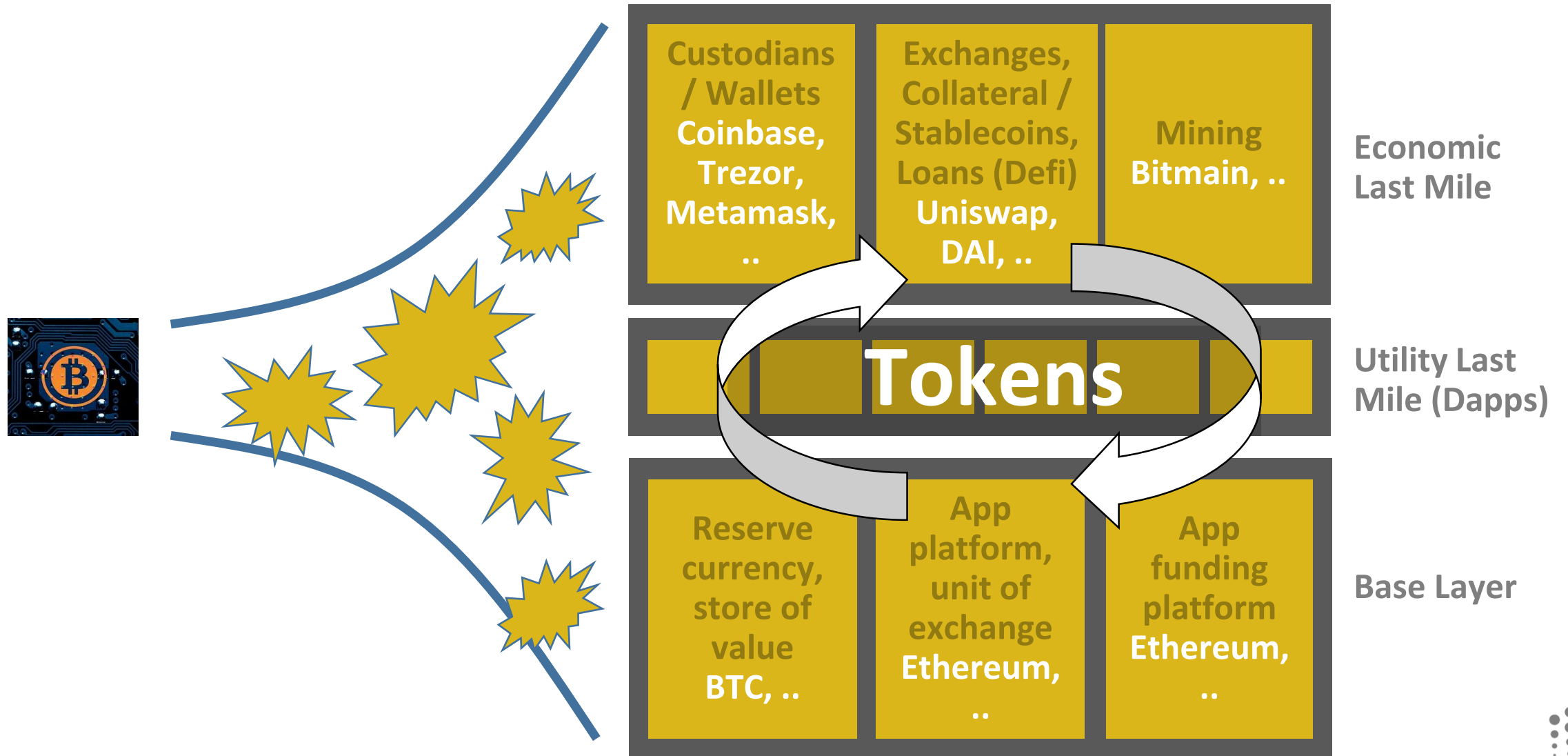


What Might a Data Economy Look Like?

What does the Token Economy look like?



What does the Token Economy look like?



Q: What will the data economy look like?

A: *≈ The Token Economy*

Token Economy

Data Economy

Economic Last Mile

Custodians / Wallets
Coinbase,
Trezor,
Metamask

Exchanges,
Collateral /
Stablecoins,
Loans (Defi)
Uniswap,
DAI, ..

Mining
Bitmain, ..

Custodians / Wallets

Dec. Data
Exchanges,
Data as
Collateral,
Loans

Mining:
Service
networks

Utility Last Mile (Dapps)

Tokens

Data Tokens

Base Layer

Reserve
currency,
store of
value
BTC

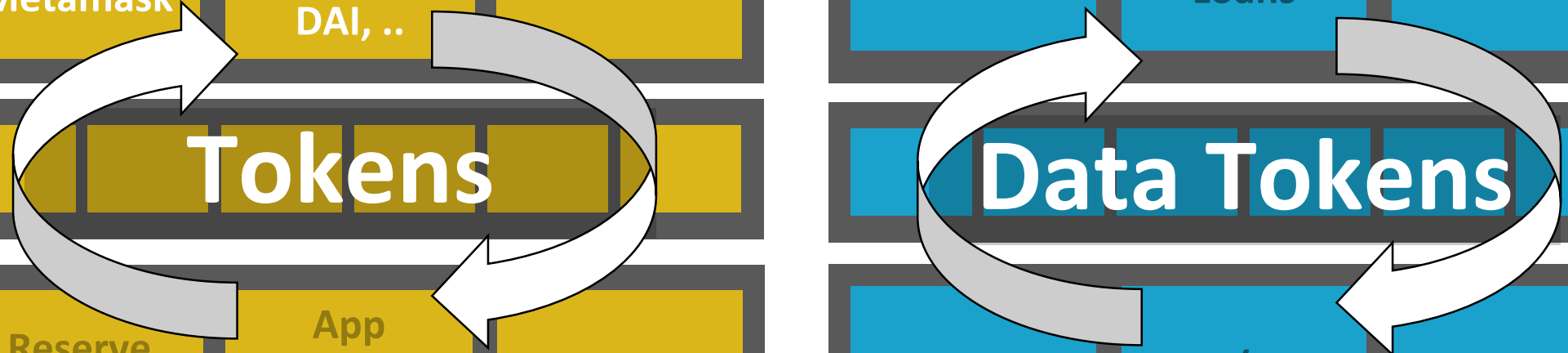
App
platform,
unit of
exchange
Ethereum/
ETH, ..

App
funding
platform
Ethereum

Reserve
currency,
store of
value

Data/asset
platform,
unit of
exchange

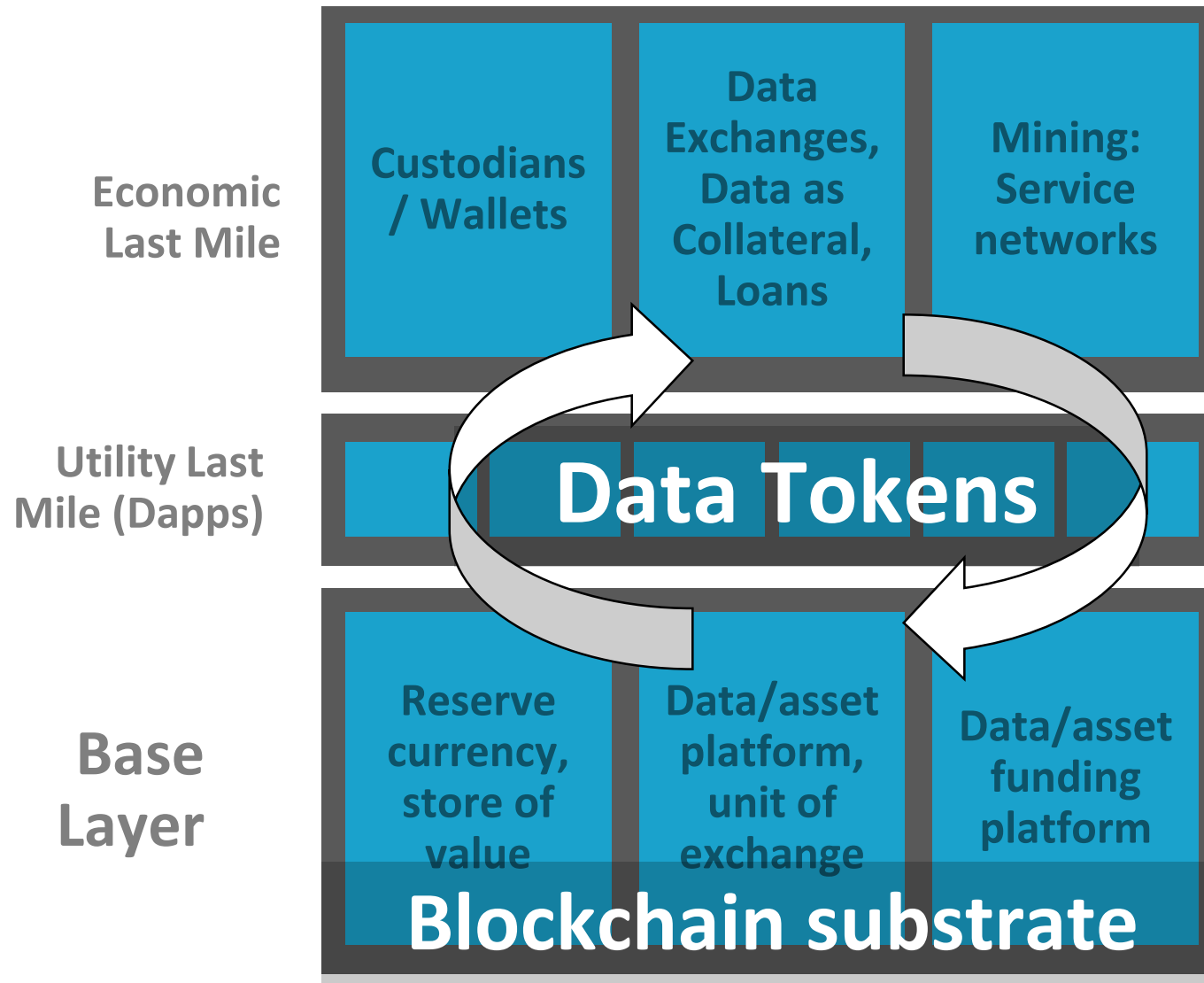
Data/asset
funding
platform



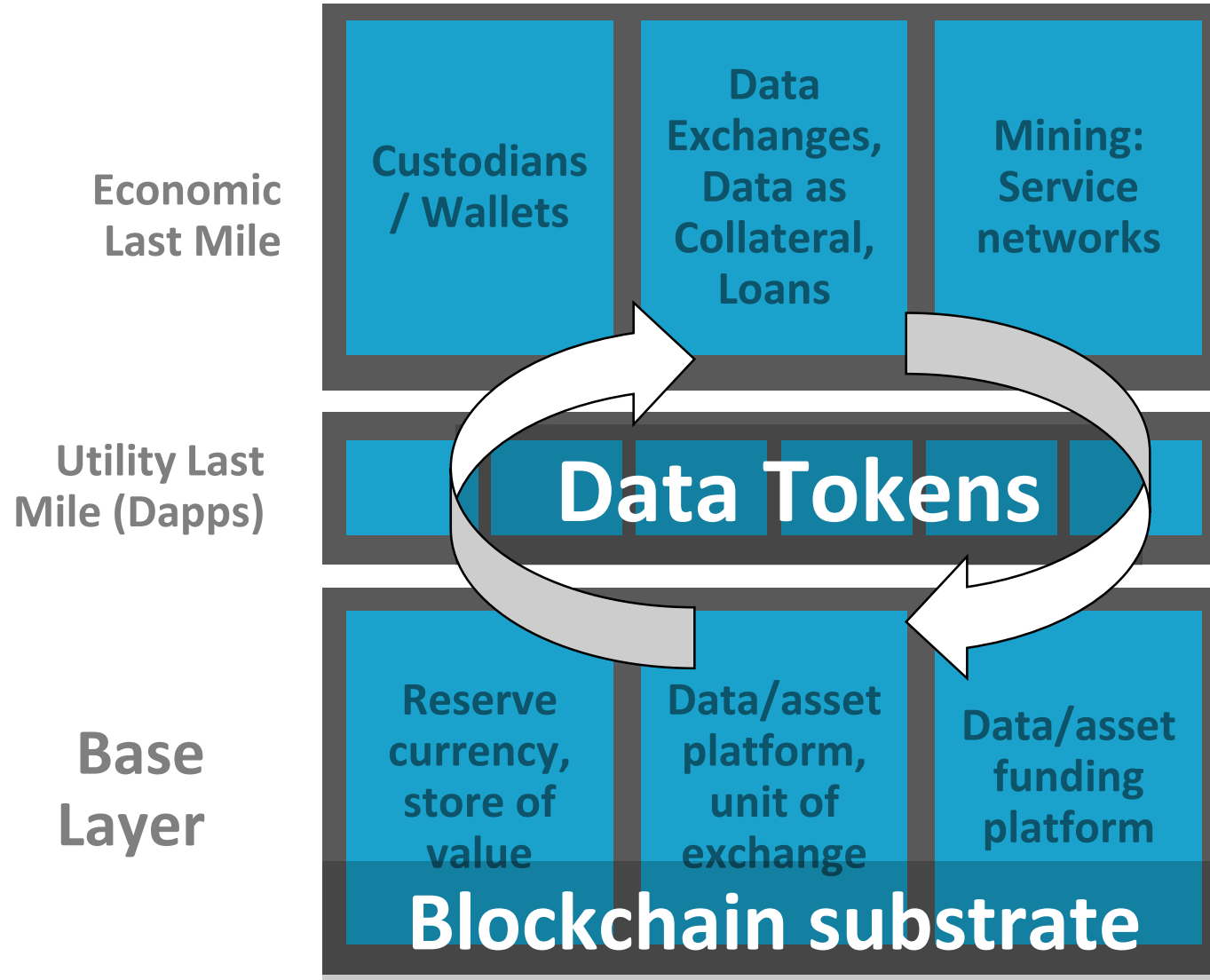
How Might We Implement a Data Economy?



Implementing a Radical Data Economy



Implementing a Radical Data Economy: Blockchain Substrate

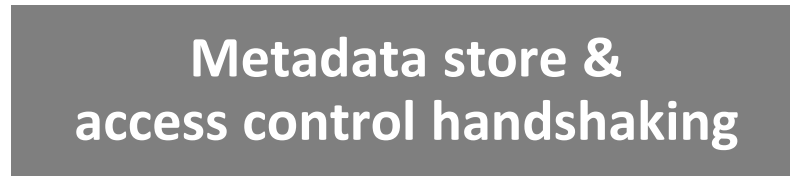


Blockchain substrate with on-chain access control

github.com/oceanprotocol



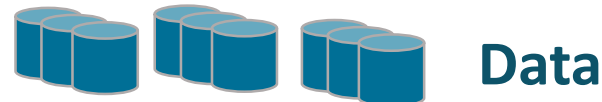
Many-local
frontend



Metadata

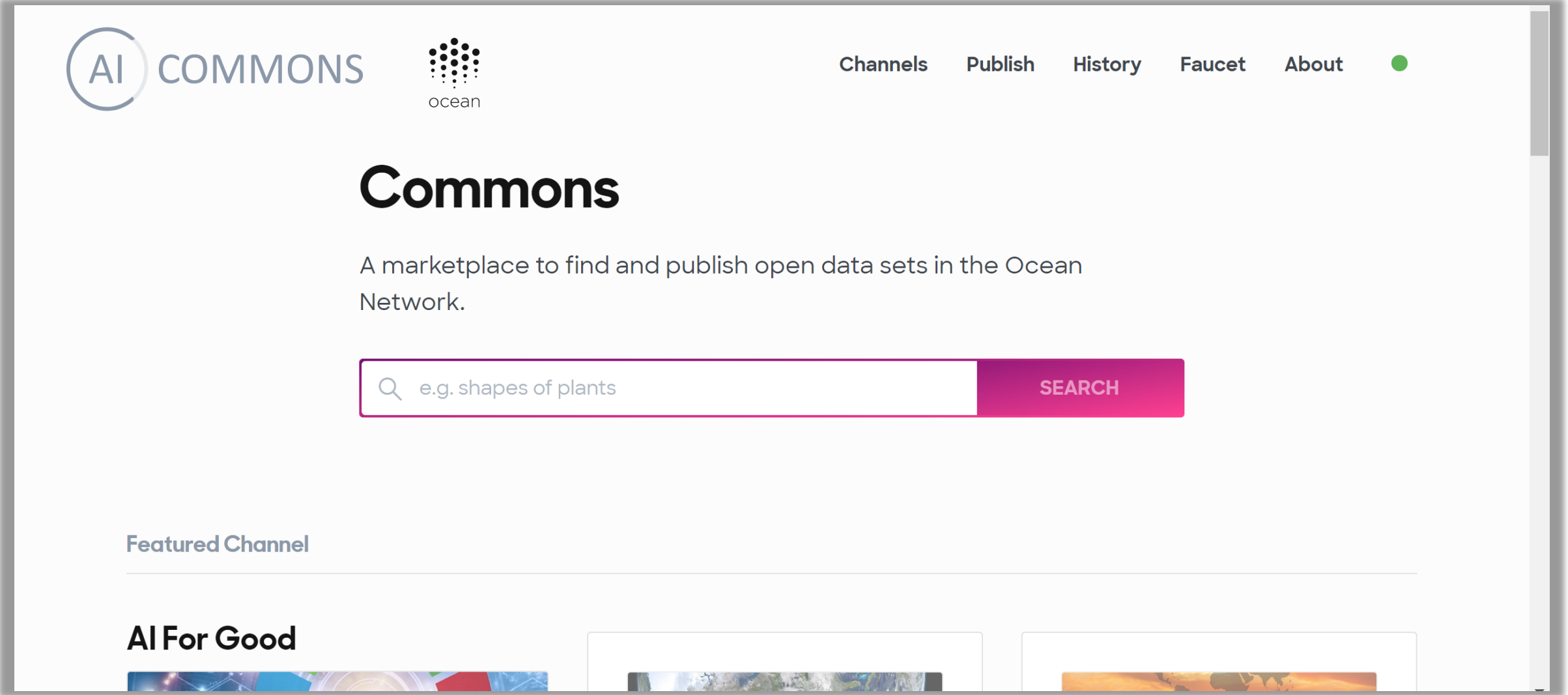


Single-global,
handshaking



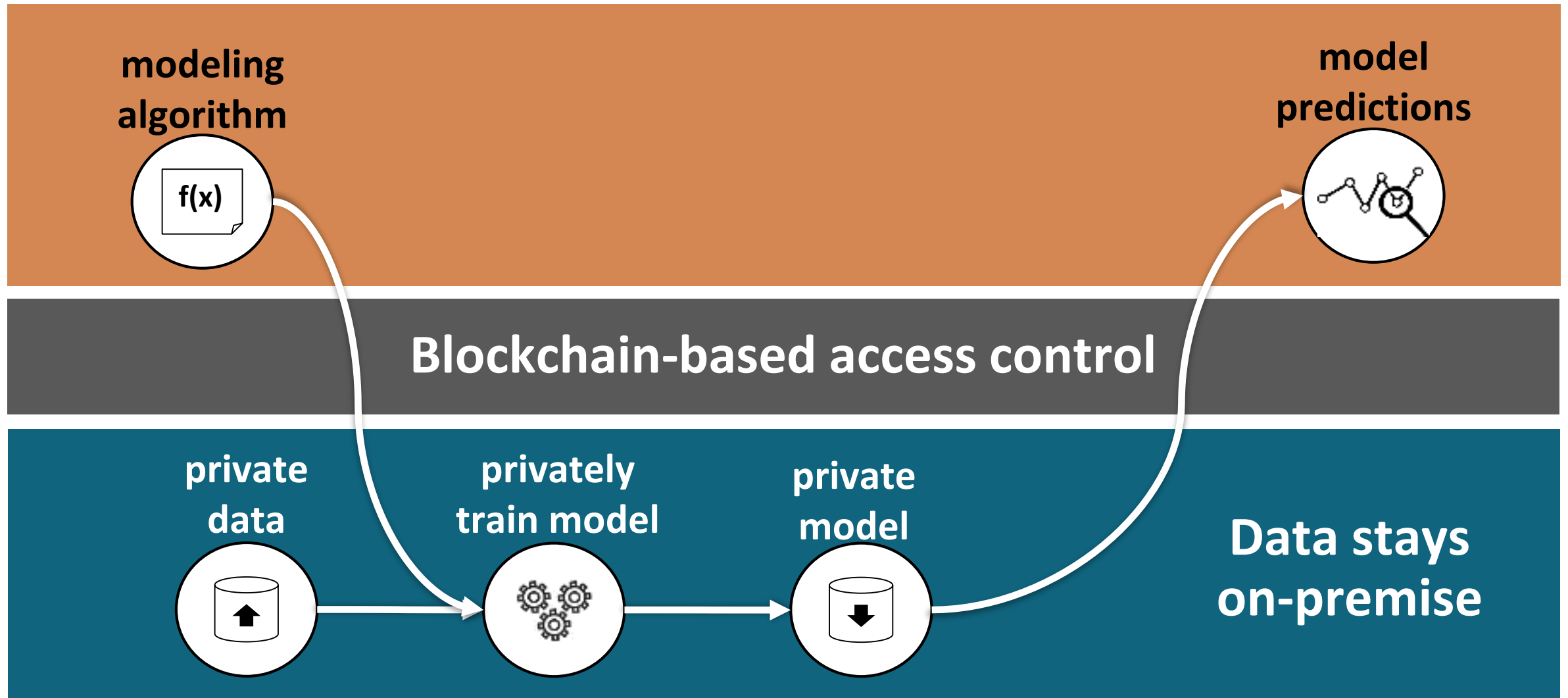
Actual Product

Example frontend: commons.oceanprotocol.com



Useful trick: Unlock private data while preserving privacy

How: Bring compute to the data, via *compute* access control



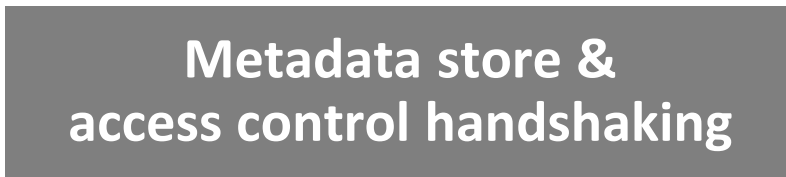
Architecture is similar to flight tickets, BitTorrent, DNS, Ox, ..



Many-local
frontend

Kayak.com,
easyjet.com

Kazaa



Metadata

Backends for
Kayak / Easyjet

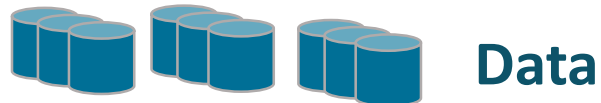
Torrent
trackers



Single-global,
handshaking

SABRE
database

BitTorrent
network

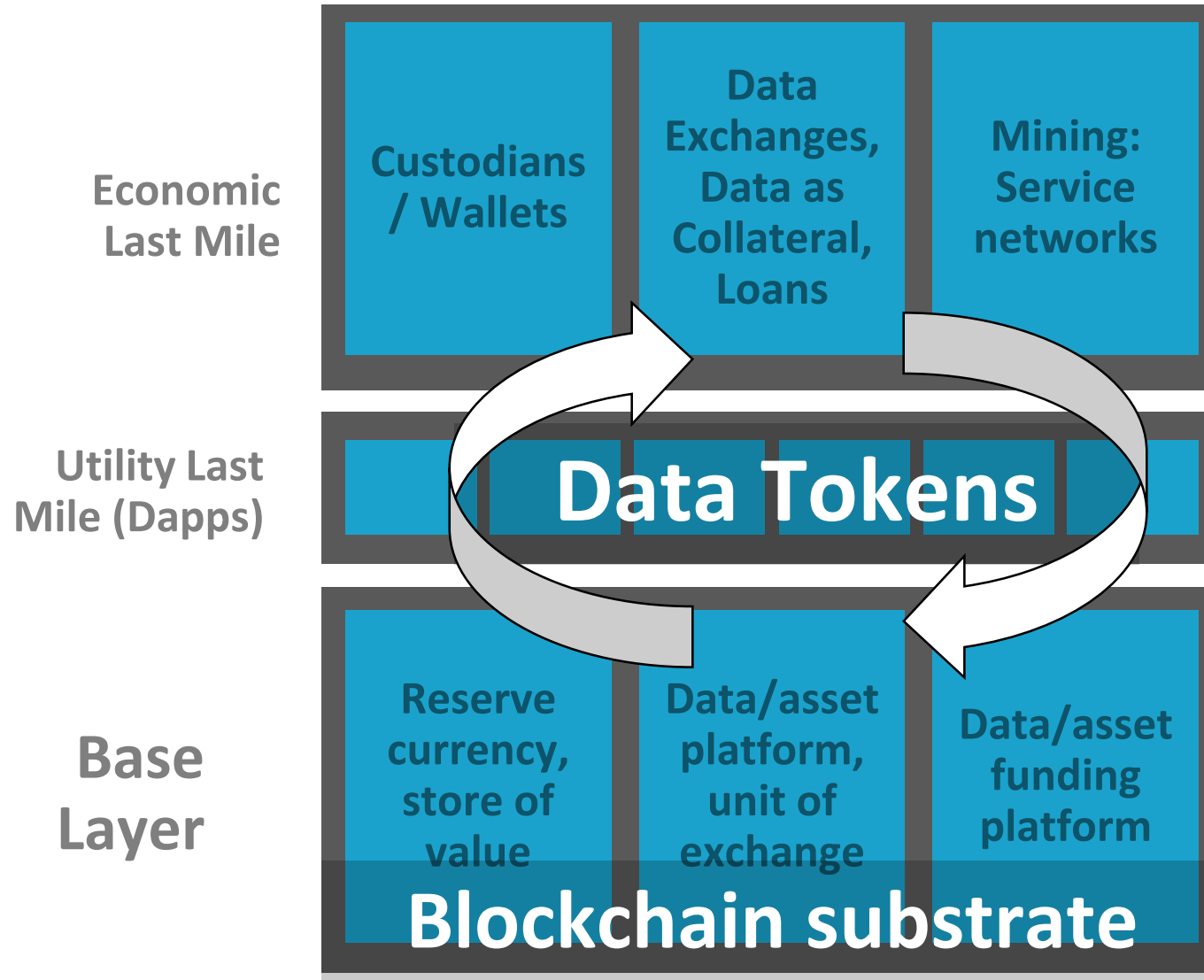


Actual Product

Flight ticket

Movie file

Implementing a Radical Data Economy: Data Tokens



Data Tokens: Tokens for data access control

- Wrap permissions in a non-fungible token (ERC721)
- Hold & transfer via crypto wallets: SW/HW, single-sig/Multisig/DAO

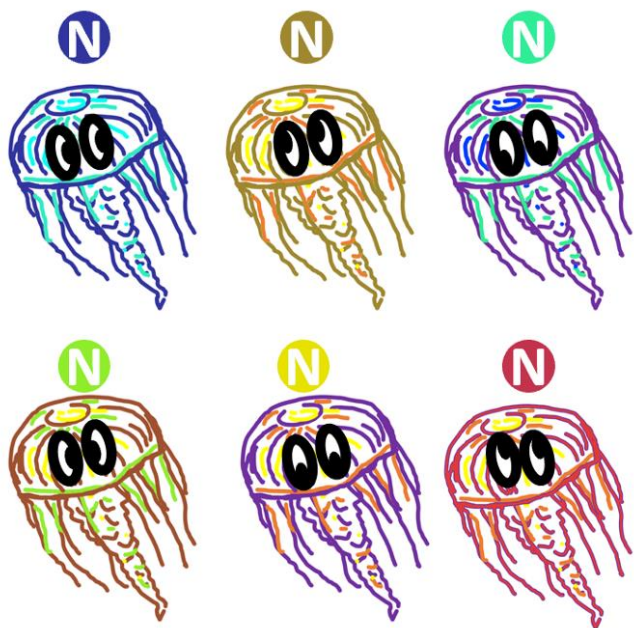


(Image © Riddle & Code, used with permission)

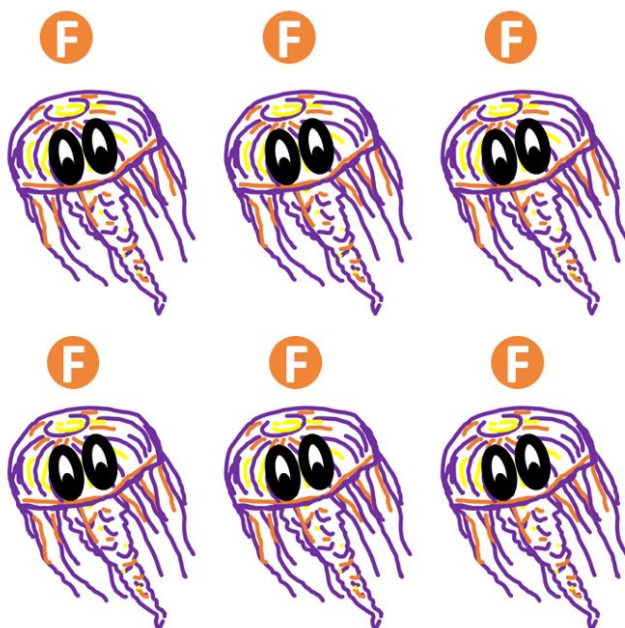
Non-Fungible, Fungible, & Composable Data Tokens

- Fungible: limited-edition datasets, bonding curve pricing, ERC20 infra
- Non-fungible: data bundles, data indices, data baskets, compute pipelines

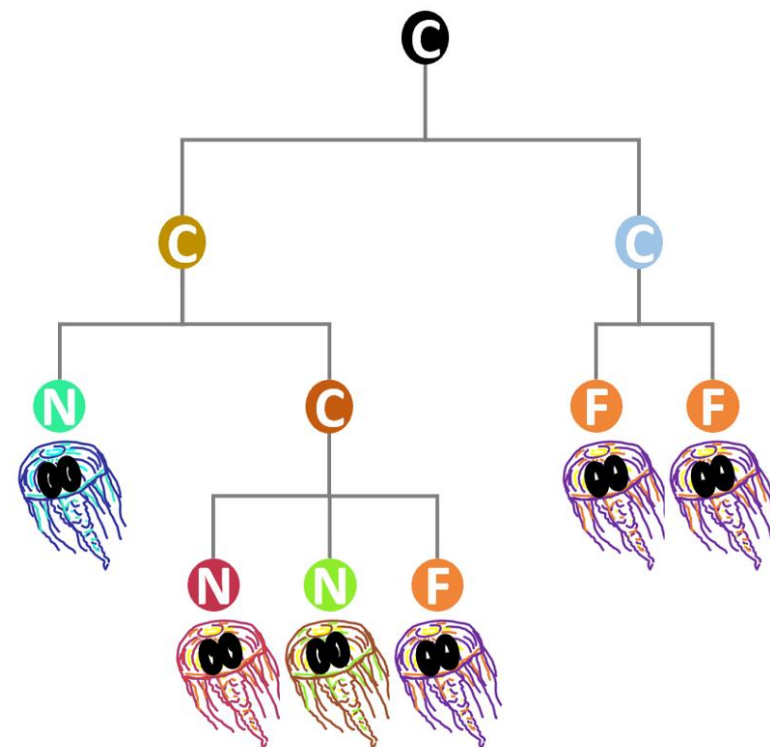
Non-fungible
data tokens



Fungible
data tokens



Composable
data tokens





Applications in a Radical Data Economy

Opportunities in dapps: Analytics & data science tools

Data Economy

Economic
Last Mile

Custodians
/ Wallets

Data
Exchanges,
Data as
Collateral,
Loans

Mining:
Service
networks

Utility
Last Mile
(Dapps)

Data science tools

Base Layer

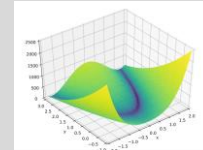
Reserve
currency,
store of
value

Data/asset
platform,
unit of
exchange

Data/asset
funding
platform



++capabilities for users:
Buy/sell services via wallets
Way more data
Data/compute provenance



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Opportunities in last financial mile 1/3: Mining = Integrations with Data & Compute Services

Generalized mining for the data economy



enigma



Custodians /
Wallets

Data
Exchanges,
Data as
Collateral,
Loans

Mining:
Service
networks



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Opportunities in last financial mile 2/3:

Data custody

Enterprise data management via crypto wallets

Hardware data wallets

Sovereign personal data management

Data access management for governments

Data management layer for smart / conscious cities

Browser wallets for website data access

Build AI models across hospitals / etc, without privacy issues

Multisig data wallets

Custodians / Wallets

Data Exchanges, Data as Collateral, Loans

Mining: Service networks

Data unions via Data DAOs



Opportunities in last financial mile 3/3:

Data * DeFi

Non-custodial data exchanges

Buy & sell
private data

Dataset portfolios
(Set * Ocean)

Data tokens in financial supply chains

Tokenized data insurance

ICO'ing datasets

Bundles of data + storage + compute

Price data with Harberger tax

Borrow data, pay in data

Loan data, earn interest in data

Stablecoin backed by 1M datasets

Long-tail data markets
Via e.g. n-token automated market maker like Balancer

Price data with bonding curves

Price data with channel auctions

Custodians / Wallets

Data Exchanges, Data as Collateral, Loans

Mining: Service networks

Conclusion



Blockchain is a new tool to wire economic institutions (including *Radical* ones)

Ethical choice



Incentive choice



Outcome

~~Exclusive vs~~ locked-open inclusive ~~govt~~ policy

Via blockchain-based economic institutions

Prosperity of the society / ecosystem

Just as we're rewiring the money economy, Let's rewire the data economy

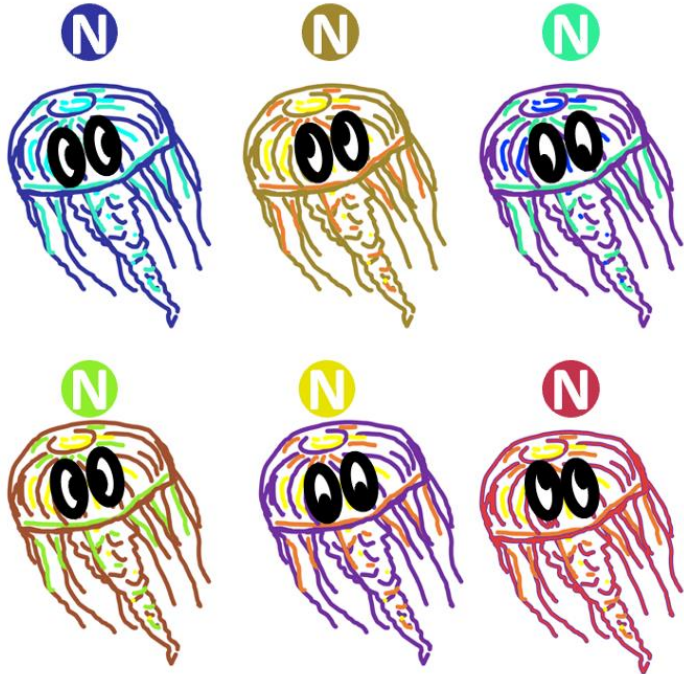
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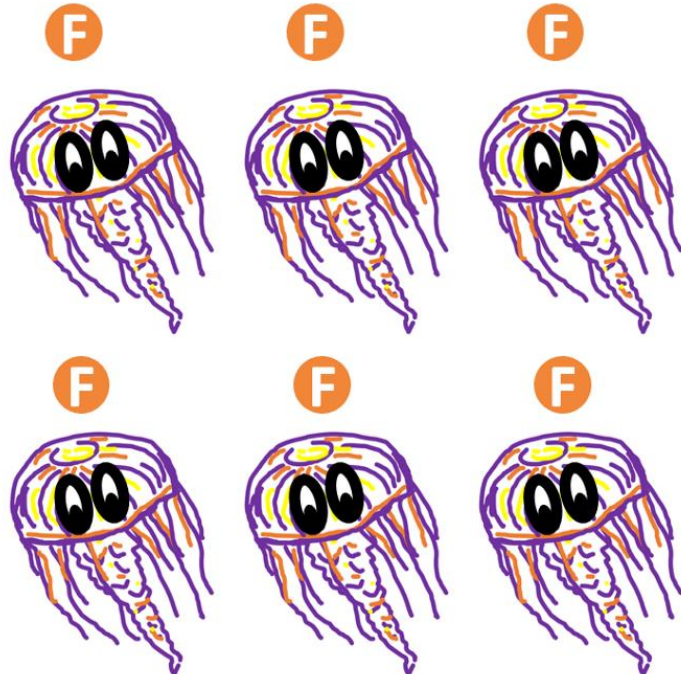


To Implement the Radical Data Economy, Data Tokens are the Lifeblood And Access Control is the Heart

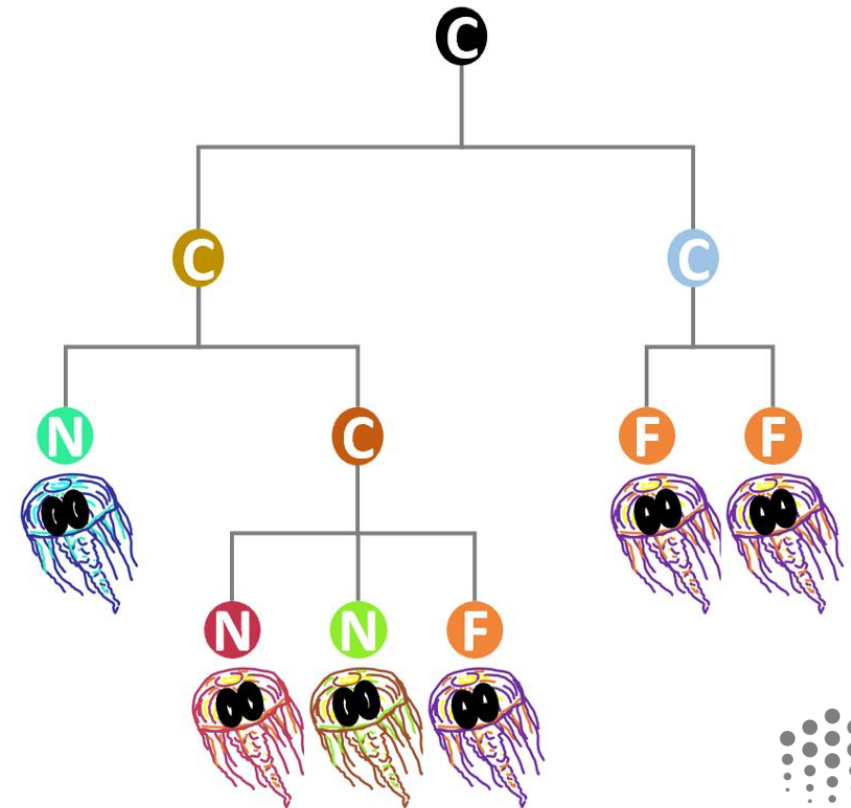
Non-fungible
data tokens



Fungible
data tokens



Composable
data tokens



The Radical Data Economy Can Catalyze Our Prosperity

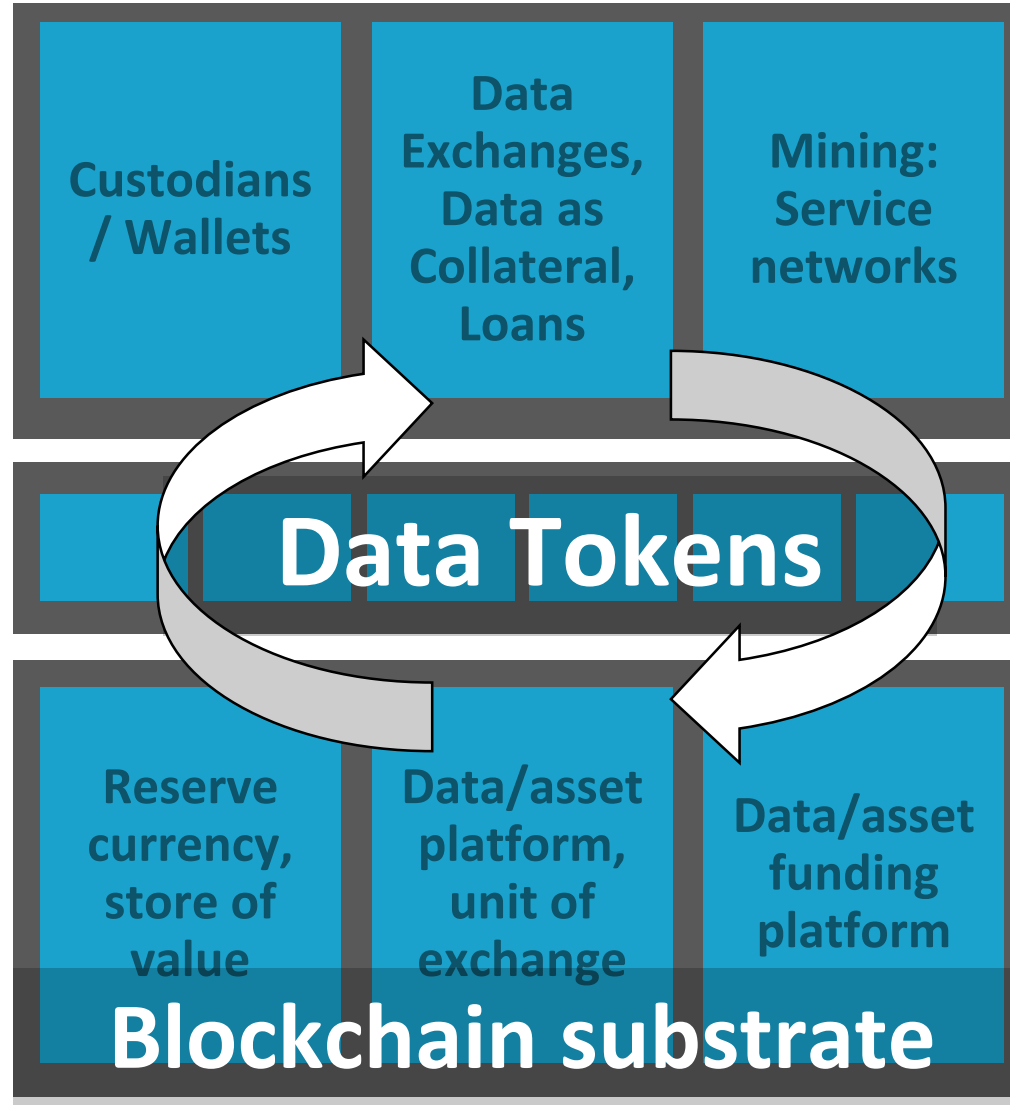
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Buy & sell
private data

Price data
with
Harberger tax

Data management
layer for smart /
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Build AI models across
hospitals / etc, without
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Sovereign
personal data
management

Data unions
via Data DAOs

Dataset
portfolios
(Set * Ocean)

Stablecoin
backed by 1M
datasets