

Blockchain @Paradise

FIJI | Regional Blockchain TechCamp

April 9th - 11th University of the South Pacific



CONSENSYS

Keynote



Introductions

Blockchain 1.0 | Bitcoin

Blockchain 2.0 | Ethereum

Blockchain | Decentralization of compute, data and value

Implications

- **People | Self Sovereign Identity**
- **Trade | Transparent supply chains**
- **Energy | Decentralized Electricity Infrastructure**

Blockchain | Art of the Possible



Consensus is 700+ blockchain experts, entrepreneurs, computer scientists, designers, engineers, consultants, and business leaders across 6 continents



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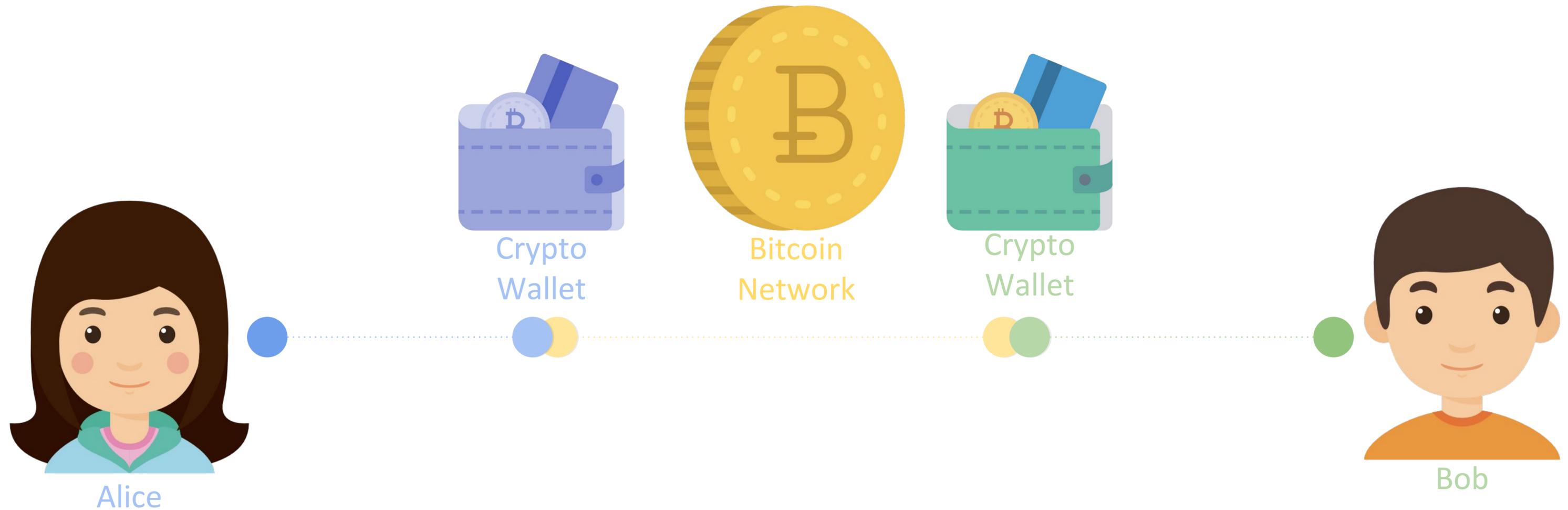
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Blockchain 1.0 | Bitcoin

Allows untrusted peer-to-peer value exchange transactions



Blockchain 2.0 | Ethereum



Allows sophisticated business logic enabled by “smart contracts”



BITCOIN

Store and transact value (money)



CRYPTOASSETS

Represent and transact other assets (physical or digital)



ethereum



SMART CONTRACTS

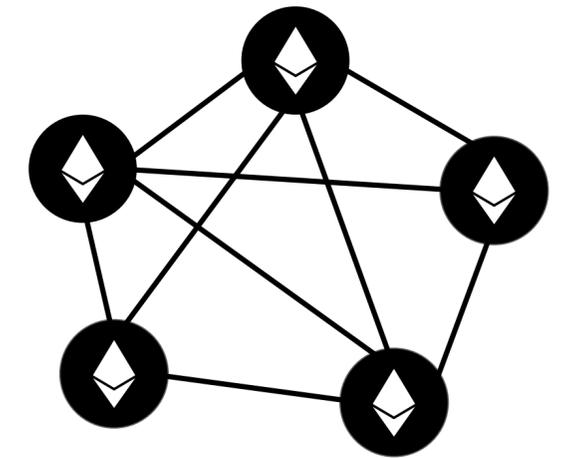
Describe and execute complex business logic

1.0 Value (Data) Transfer

2.0 Programmable (Data & Logic)

1.0 Purpose built (a use case)

2.0 General purpose (many use cases)



Conditions:

- If Alice's flight is delayed for more than 5 hours
- If Alice's flight is cancelled

Result:

- Alice will receive 1.5x insurance premium

```
if (alice.flight.delay > 5 or alice.flight == cancelled) =>  
then {  
    alice.refund = alice.premium * 1.5  
    insurer.balance = insurer.balance - alice.refund  
    alice.balance = alice.balance + alice.refund  
}
```

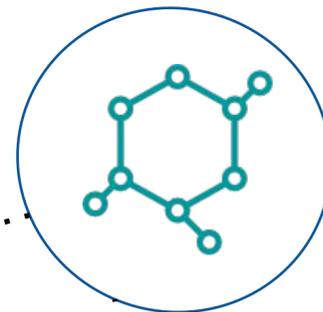


What is a blockchain ?

Originally conceived as the underlying protocol of Bitcoin, blockchain technology has since evolved to support a number of applications with the introduction of “smart contracts” in Ethereum.

Append only ledger

Blockchain is a write-once database so it records an immutable record of every transaction that occurs.



Decentralized

There are many replicas of the blockchain database and no one participant can tamper it. Consensus among majority participants is needed to update the database.

The promise of the blockchain
The trust machine

The technology behind bitcoin could transform how the economy works

The Economist

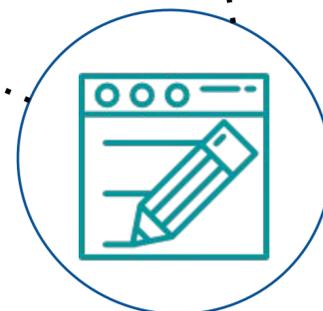


Cryptographically Secure

Uses tried and true public/ private signature technology. Blockchain applies this technology to create transactions that are impervious to fraud and establishes a shared truth.

Smart contracts

The Ethereum blockchain can store both data and Smart Contract (“logic”) in the blockchain





A radical progression to trusted compute

Paper & Mainframes 1950's

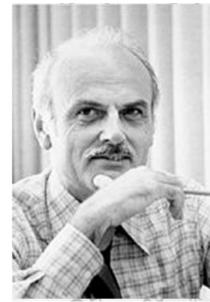


Data is

Recordable

Mainframe computing opened the doors for the recording and use of mass quantities of data in a digital fashion.

SQL Database 1970's

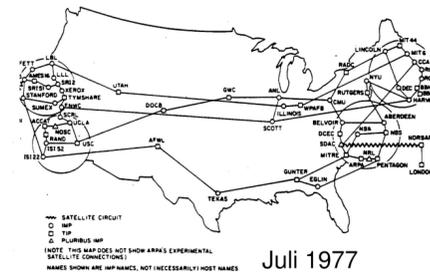


Data is

Searchable

With the invention of SQL information became more searchable, thereby making it more accessible and user friendly.

Networks / Internet 1990's

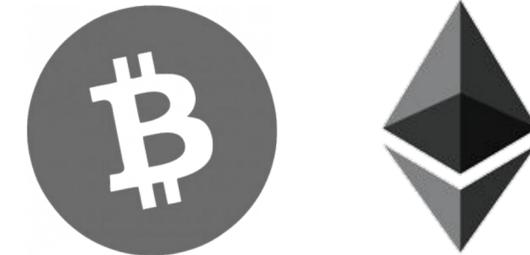


Data is

Distributable

The explosive growth of the internet has helped us distribute information and content all over the world, but

Blockchain Today



Data is

Trustable

Blockchain shifts the paradigm of computing, allowing us to transfer value and run applications on a trusted platform.



A radical decentralization of data

Modern databases brought tremendous automation



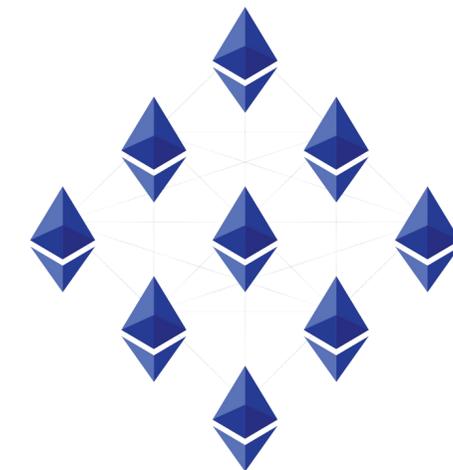
...but silo'd data in exchange for scale

The internet made information globally accessible



...but many services are centrally controlled (and reliant on firewalls)

Blockchain offers a decentralized, trusted network



...with profound implications for sovereignty and efficiency



A radical redistribution of value

Value increases with the number of users...



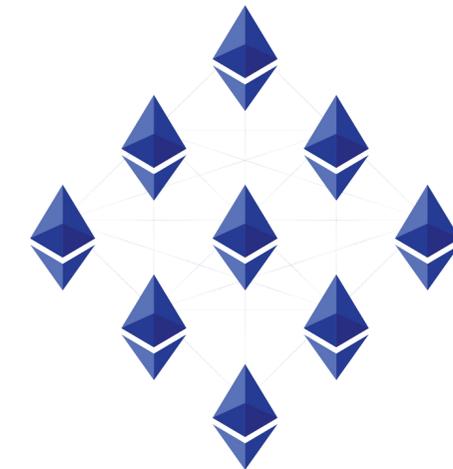
...but is traditionally captured by the vendor

Social / mobile created P2P 2-3 sided marketplaces...



...but that only exacerbated this effect

Blockchain enables true sharing economy and n-sided markets



... driving even more rapid adoption



Why Blockchain ?

Blockchain offers a number of benefits over traditional and legacy systems.



Reduce cost

- Removes cost of intermediaries
- Smart contracts reduce manual processing, re-work, and processing errors

75%

Potential savings projected by a leading insurer with implementing a Catastrophe Bond on a blockchain

\$20B

Blockchain technologies could reduce banks' infrastructural costs [by \\$15-20 billions a year by 2022](#)



Increase revenue

- New products and services
- Value capture from demonstrating provable provenance of commodity products

\$10B

[UBS donated](#) blockchain-based trading platform to be used to raise \$10B selling social impact bonds

2M

Grammy nominated artist Imogen Heap [launched](#) her single 'Tiny Human' on a blockchain based platform [Ujo Music](#) to her 2M Twitter followers



Reduce risk

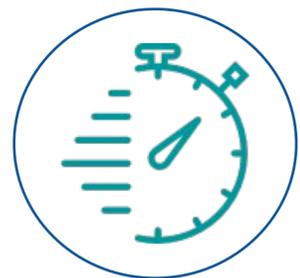
- No single point of failure or attack
- Non-repudiability reduces risk of fraud
- Immutability and provenance preserves audit trail

360°

A leading insurer is looking to implement a KYC solution to build a 360° Customer view on a blockchain

\$10B

[Global spend on Anti-Money Laundering](#) compliance alone is estimated at \$10B



Increase Speed and Customer Satisfaction

- Simplifies supply chain by removing intermediaries
- Guarantees supply chain provenance
- Allows T+0 settlement

T+0

Several trading houses are looking to leverage blockchain technologies to allow T+0 trade settlements



Implications

People | Self Sovereign Identity
(Government, Tourism)

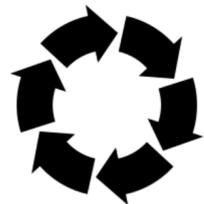
Goods | Transparent Supply chain
(Sugar, Gold, Seafood)

Energy | Decentralizing
Generation and distribution





The digital identity crisis...



Repetitive registration and verification causes significant friction to using multiple digital services...



resulting in high upkeep and liability costs...



Users' PII stored in various places exposes them to cyberattacks and identity theft, while increasing password complexity.

Enter uPort!



Identity rooted in Ethereum



Passwordless, single sign-on



Simplified user centric key & data mgmt.



User friendly blockchain transactions



Push communication protocol



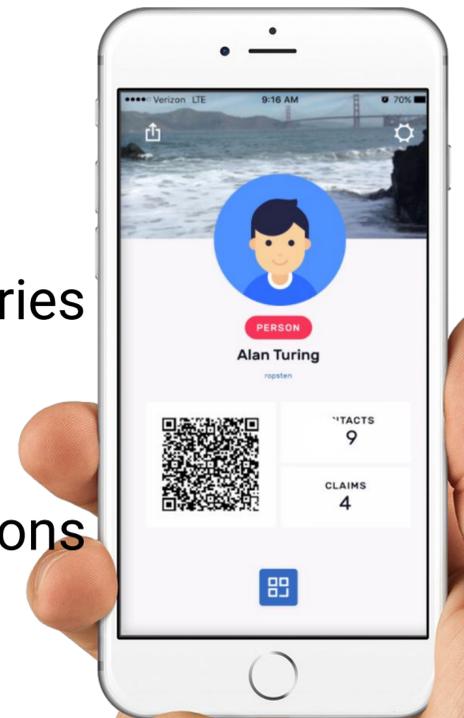
Gateway for private chains and testnets

Adoption

- 10,000 alpha signups
- 2,000 monthly avg. users
- 4,000 twitter followers

Roadmap highlights

- New mobile app & dev libraries
- Mainnet launch
- First KYC partnerships
- Mobile SDK & KYC integrations
- Desktop signer app
- Wallet integration
- Enhanced key management



Significant projects

- Ministry of Planning, Brazil: Document notary
- City of Zug, Switzerland: eID + Gov. services



Swiss "Crypto Valley" to Create Digital Identities for Its Citizens on the Ethereum Blockchain

As of September 2017, the Swiss town of Zug will offer all of its citizens a digital identity on the Ethereum blockchain.



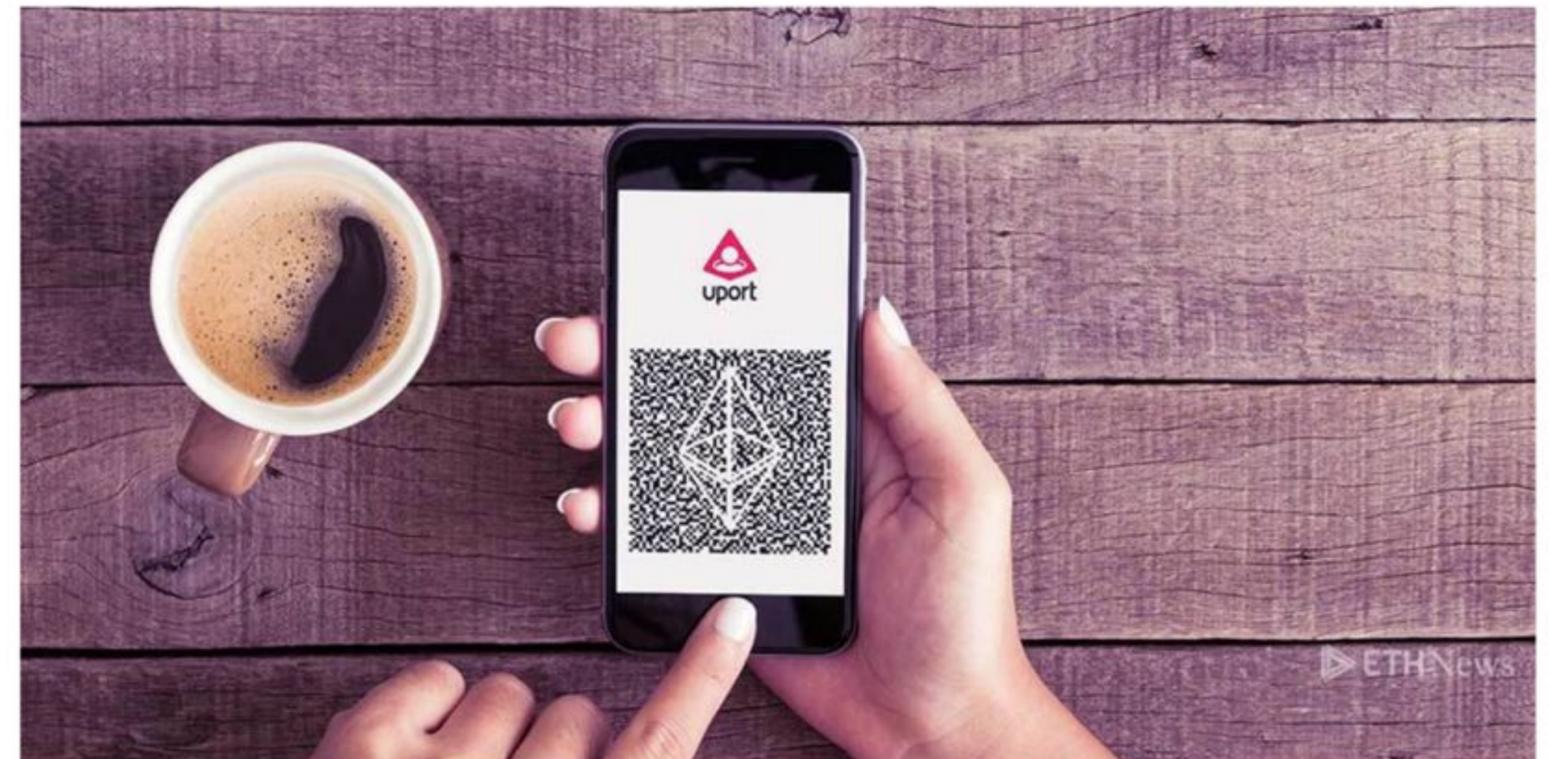
uPort Announces Zug Digital Ethereum ID Pilot

Digital Ethereum identity platform from uPort will be available to citizens of Zug in September 2017.



By [Dan Cummings](#)

July 7, 2017 | [ETHNews.com](#)



Goods | Transparent Supply chain

Blockchain enables provable lineage of goods (Sugar, Gold, Seafood etc.)



HEALTHCARE: Absence of vaccine provenance and administration records impacts patients, donors, social workers and manufacturers



Vaccines



Food

FOOD : Conscientious consumers are demanding proveable lineage of food and produce to ensure they are eating ethically sourced, organically grown etc. food.



Real Estate

REAL ESTATE: Absence of approval and sale provenance of lands/real-estate can lead to long validation lead times during sale or invalid double-sales

Assets



Rig Samples

OIL & GAS: Lost and untraced samples impact important business decisions and lead to costly fines for non-compliance



Autos

VEHICLES: Capture and reliably track vehicle telematics to unlock new business value for used car sales or inform insurance pricing and rental car management

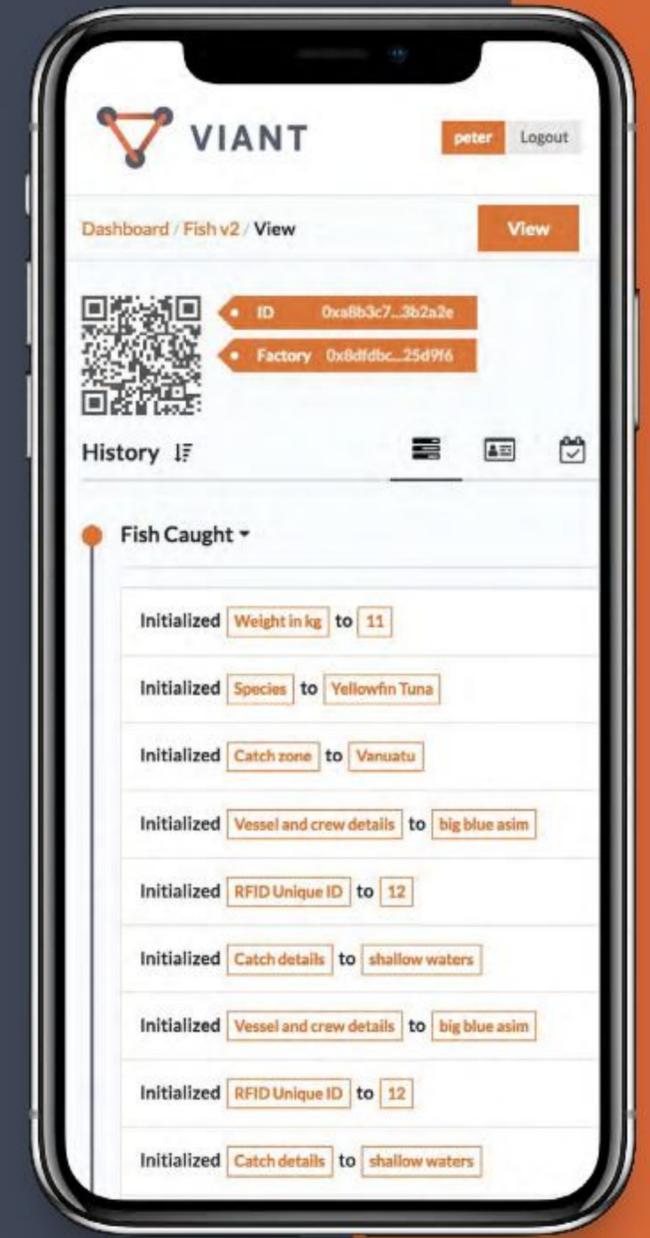
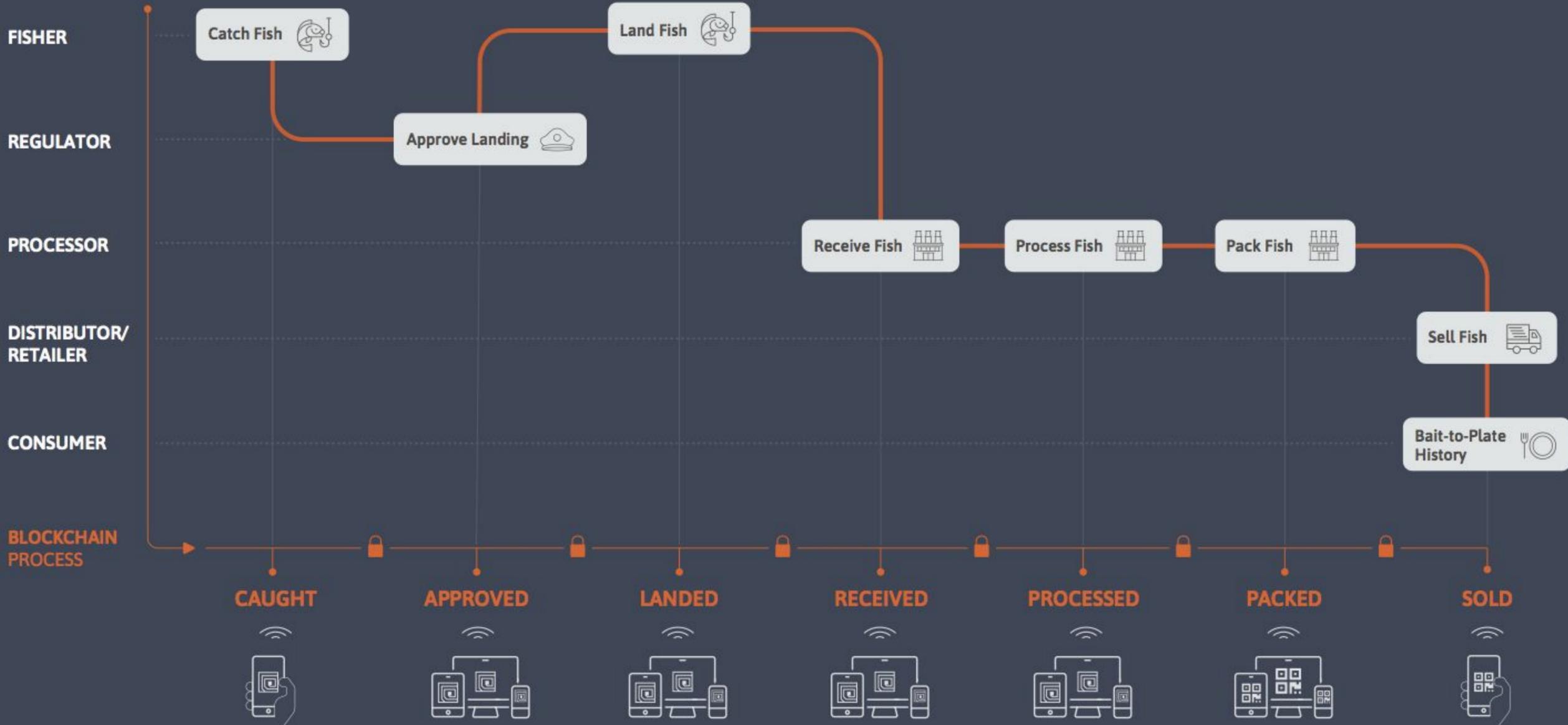
A tamper proof asset tracking system for all participants to instantly trust and reliably validate asset ownership, chain of custody, proof of origin etc. does not exist



BETA CASE STUDY

Bait to Plate

Tuna traceability with the World Wide Fund for Nature (WWF)



The World Wildlife Fund for Nature participated in the Beta program to translate their Yellowfin tuna idea into a solution on Viant.

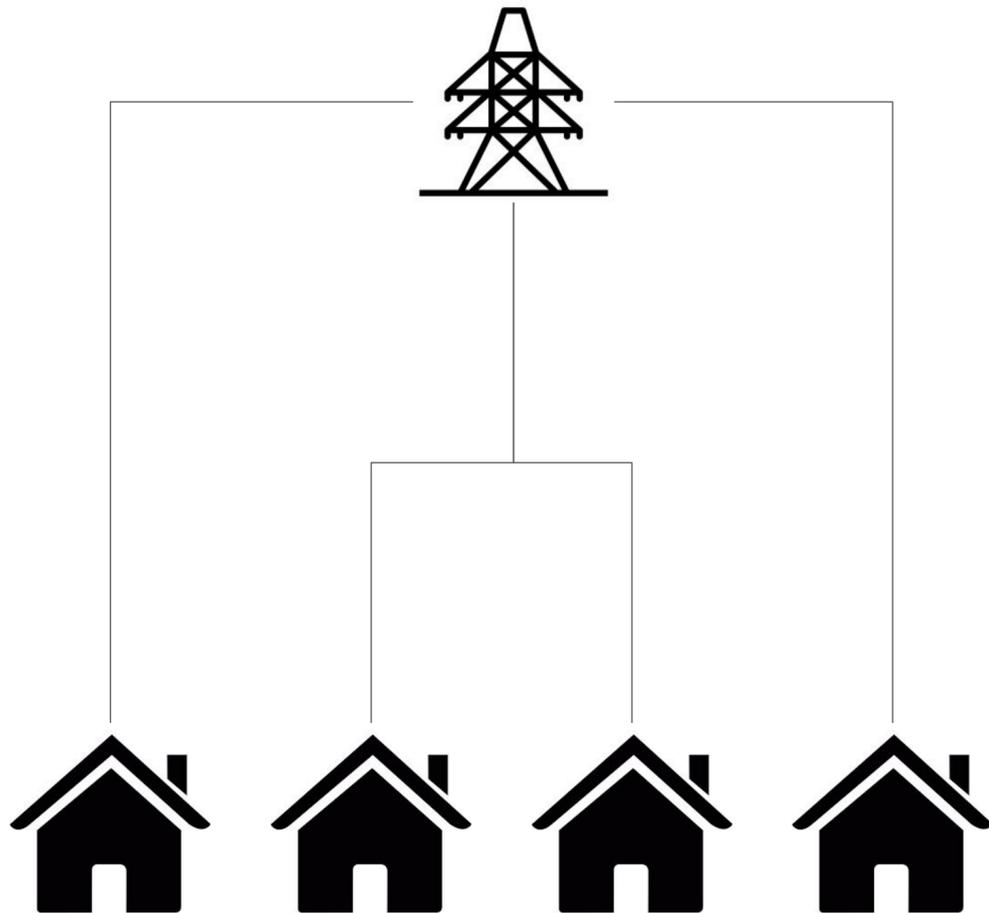


Energy | Decentralized Electricity Infrastructure

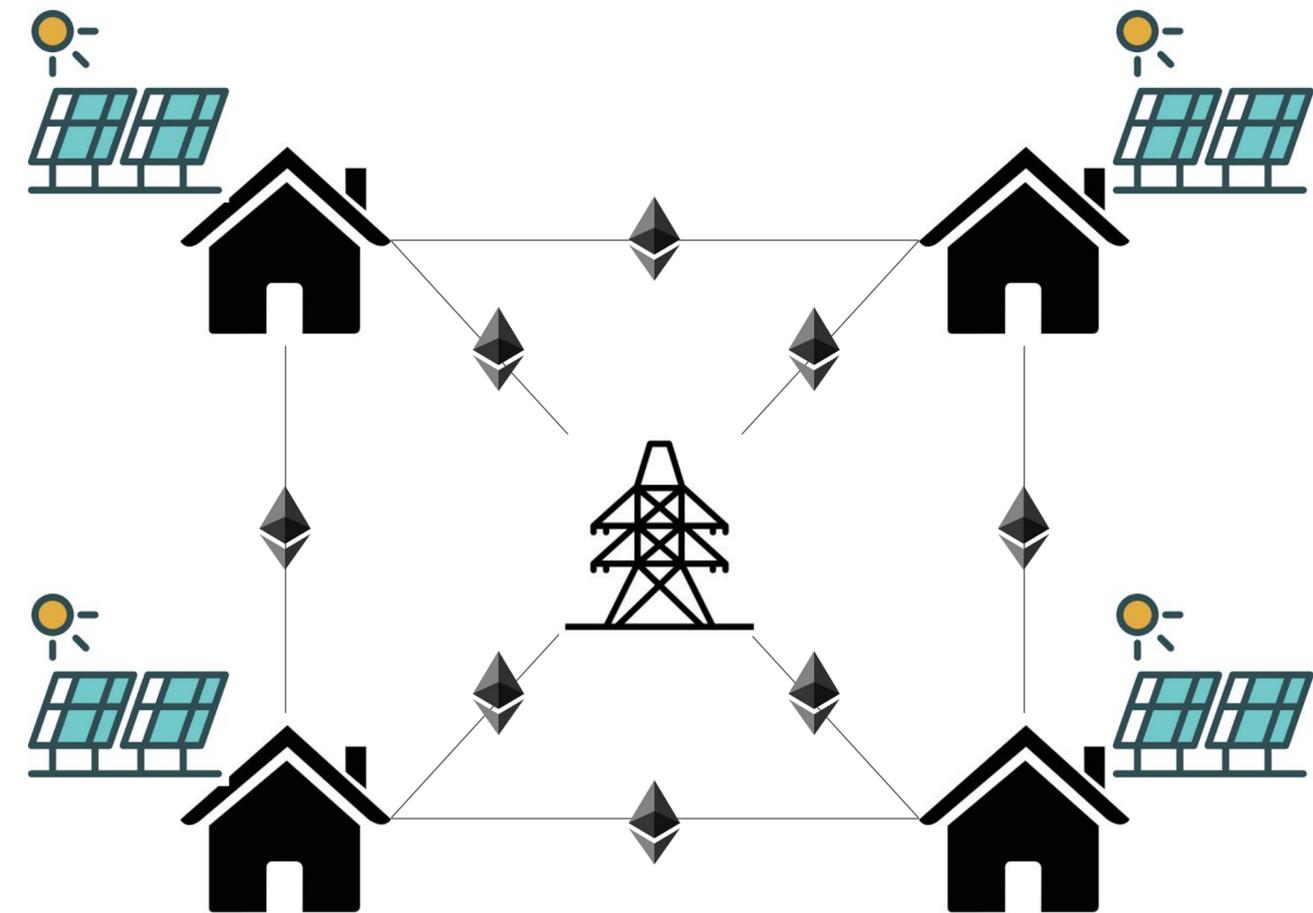


Blockchains help accelerate the already decentralizing electricity generation and delivery infrastructure

Centralized Electricity Distribution



Decentralized Electricity Infrastructure



Alice on one side of the street will be able to get paid for selling electrons to Bob on the other side of the street. Alice will be able to flip from prosumer selling mode to consumer buying mode based on the level of her battery



Smart agents use public Ethereum network to pay for electricity every 15 min resulting in cheap, secure, real time payments

Dynamic Market Switching

Your smart agent can dynamically switch between multiple energy markets, optimizing for lowest price, lowering your monthly spend.

Automated Usage Reduction

By controlling home devices, like a smart thermostat or a home battery, your smart agent automatically reduces your consumption by avoiding usage when the price of energy rises. It can even load your smart battery when energy prices are low and sell back when the price is high.

A Greener, More Efficient Grid

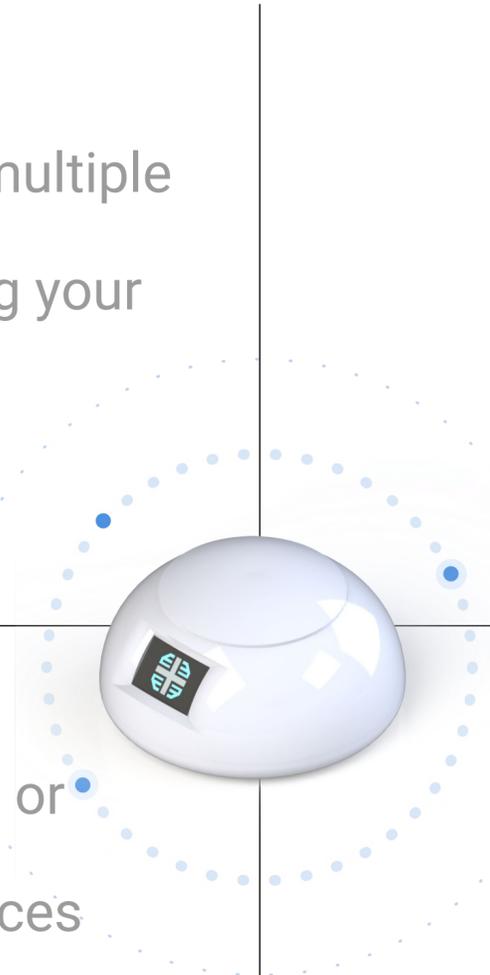
By reducing your individual energy consumption, and by selling stored energy back when the market most needs it, your agent helps reduce strain across the grid and make it more efficient for all.

3 Utilities

Currently evaluating licensing the technology for their services

5000

Household customers by Q3 2018



...and many more use cases



Travel and Tourism

Verify tourists identity documents once, then use across services e.g. hotels, car hire, medical etc. Blockchain based loyalty programs / 'virtual currencies'



Land & Maritime Transport

Drivers licence and vehicle registry, vehicle tolls , Management of land transport permits, Tracking of goods from port to retail, eliminating counterfeit goods



Municipality

Blockchain based land registry, Platform for payment of services, Trade license management



Medical Records

Personal ownership of medical records that can be used universally.



Banking / Finance

Interbank tokens to eliminate reconciliation and settlement, Services for unbanked through near zero transaction fees and ease of micropayments



Creative Work

Art ownership and distribution, where creators are not exploited and receive direct compensation for their work.



Voting

Secure auditable voting systems.



IoT

Blockchain used as a means to connect and audit IoT, machine-to-machine value transfer.



Decentralized Storage

Does not require additional backups and disaster recovery. No central point of failure and control.

Ecosystem



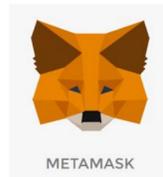
There is an exponentially growing ecosystem of blockchain developers, tools and consortiums

Truffle
Swiss Army Knife for Developers
250,000+ Downloads

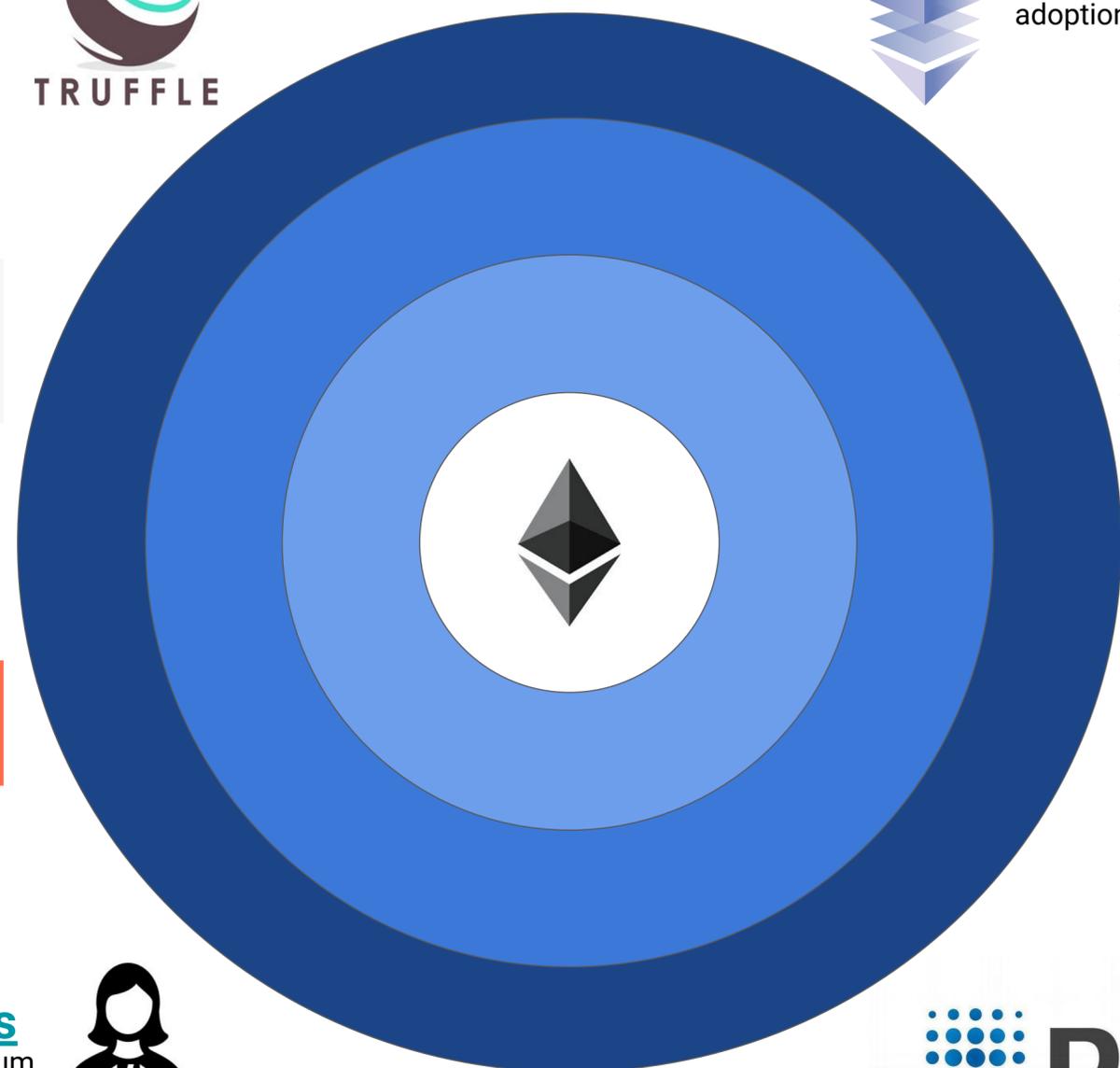


Enterprise Ethereum Alliance
300+ Members collaborating towards enterprise blockchain adoption

Metamask
Brings Ethereum to your browser
1,052,728 users on chrome webstore



Blockchain for Social Impact
Implementing blockchain-based solutions that address challenges across UNs Sustainable Development Goals



INFURA
Highly Scalable Infrastructure
Processing about 2.5B average daily requests a day



Accounting Blockchain Coalition



Helps organizations navigate accounting issues related to digital assets and distributed ledger technologies, including blockchain

Blockchain
Top 3 fastest-growing skills
Per analysts, there are about 30x more Ethereum developers than other blockchain platforms



Decentralized Identity Foundation
open source decentralized identity ecosystem for people, organizations, apps, and devices

Vinaka !



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