

A graphic on the left side of the slide featuring a blue and green circular design with a white swoosh, set against a background of a city skyline and a large diamond-shaped object.

# Blockchain 360

**OCTOBER 23-24, 2017**

**NEW YORK CITY** InterContinental Times Square

**#BLOCKCHAIN360**

[TMT.KNECT365.COM/BLOCKCHAIN360](http://TMT.KNECT365.COM/BLOCKCHAIN360)



# Blockchain 360

## Innovation in Private and Public Blockchain

Speakers:

Joe Bender, Decentralization Engineer, ConsenSys

Jesse Grushack, Strategy & Product, ConsenSys

**#BLOCKCHAIN360**

[TMT.KNECT365.COM/BLOCKCHAIN360](https://TMT.KNECT365.COM/BLOCKCHAIN360)

# What is Ethereum?

# Why blockchain ?

Blockchain offers a number of benefits over traditional and legacy systems



### Reduce costs

Removes cost of intermediaries and smart contract automation reduces manual processing, re-work, and processing errors



### Reduce risk

No single point of failure or attack and non-repudiability reduces risk of fraud thanks to immutable audit trail and provenance



### Increase revenues

Creation of new products and services and value capture from demonstrating provable provenance of commodity products



### Improve speed and experience

Simplifies value chain by removing intermediaries and allows T+0 settlement



# Evolution of blockchain protocols

from cryptocurrencies to sophisticated business logics enabled by “smart contracts”



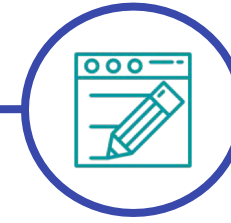
## Bitcoin

Store and transact value  
(money)



## Crypto-assets

Represent and transact other  
assets (physical or digital)



## Smart contracts

Describe and execute  
complex business logics



# Introduction to blockchain What is

## Ethereum

Ethereum was built to extend the blockchain concept with the ability to also run veridical business logic (Smart Contracts) using a decentralised network, creating a globally distributed World Computer

### Ethereum value proposition

- Builds on the Blockchain concepts of Cryptographic Security, Decentralisation and Immutability
- Adds in the capability to run decentralised Smart Contracts, a Turing complete programming language running in the Ethereum Virtual Machine
- Supports private permissioning and additional privacy features while maintaining interoperability with the public chain
- Under active development by the Ethereum Foundation, the platform continues to grow in terms of both Enterprise adoption and also functionality
- With the establishment of the Enterprise Ethereum Alliance, Ethereum is becoming the de-facto blockchain technology of choice for enterprise projects



“Think of Ethereum as a world computer.  
What Bitcoin does for payments, Ethereum does  
for anything that can be programmed.”

Vitalik Buterin, Ethereum Inventor



# Smart contracts

Ethereum was the previous blockchain to introduce the notion of self-executing smart contracts

## Smart contracts, Dapps and DAOs

- A program that is stored on the blockchain.
- The program executes by sending it a transaction
- Programs can have custody of funds and transact value automatically
- On Ethereum anyone can create and upload a smart contract to the blockchain

Contract

Offer

Consideration

Acceptance

<smart contract>

contract OfferContract {  
 uint public acceptance\_rate = 50;  
 mapping (address => uint) tradeAccount;  
 mapping (address => uint) coinAccount;  
 address public owner;  
  
 function Consideration(){  
 owner = msg.sender;  
 }  
 modifier onlyOwner {  
 if (msg.sender != owner) sign;  
 }  
 function setAccept(uint rate) onlyOwner {  
 acceptance\_rate = rate;  
 }  
}

</smart contract>

# Why Ethereum?

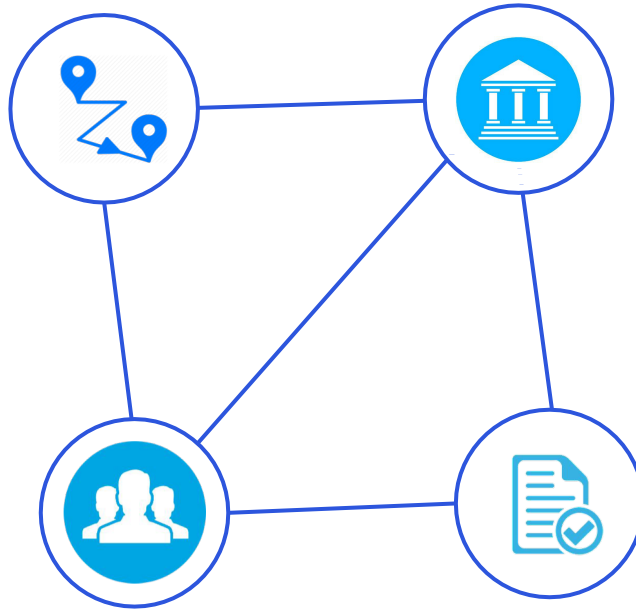
Ethereum is the only blockchain infrastructure with a built-in Turing-complete virtual machine within the full security of the blockchain protocol

## Clear Roadmap

The Ethereum Foundation has laid out a clear multiyear scalability and privacy roadmap and has the support of the most robust developer community in the ecosystem

## Developer Community

With more than 50,000 developers globally, the benefits of a public chain holding roughly \$25bn of value continues to



## Enterprise Ethereum Alliance

Enterprise Ethereum has established itself as the premier blockchain working group to ensure enterprises are building on the ethereum protocol.

## Smart Contracts

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

Ethereum provides a trust framework that allows systems to be developed for actors to interact **reliably** and **securely**



# The Ethereum advantage

Ethereum is the only blockchain infrastructure with a built-in Turing-complete virtual machine within the full security of the blockchain protocol



Formally specified security and smart contract capabilities



Vendor-neutral



Public -private blockchains compatibility



Private, permissioned blockchains for enterprise and government use cases



Rapidly growing community encompassing 30,000+ developers



Multi-billion dollars of value protected on the public network



Enterprise Ethereum Alliance (EEA) is growing faster than all other blockchain consortia



The dominant platform for the 'tokenecosystem'

# High potential use cases

Blockchain applications are emerging across many industries



### Supply Chain

Provenance of assets become verifiable and traceable leading to the revolution of supply chains.



### Medical records

Personal ownership of medical records that can be used universally.



### Fundraising

Initial Coin Offerings (ICOs) emerging as an alternative to venture capital.



### Governance

DAOs built on blockchains to maintain transparency and governance.



### Decentralized storage

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



### IoT

Blockchain used as a means to connect and audit IoT, M2M value transfer.



### Self-sovereign identity

People and business own their own identity, with no central control, and build universal reputation.



### Creative work

Art ownership and distribution, where creators receive direct compensation for their work.



### Commodities trading

Tokenization, tracking and p2p trading of commodities, such as energy.





CONSENSYS

# ConsenSys

A Venture Production Studio using blockchain technology to build distributed applications

## VISION

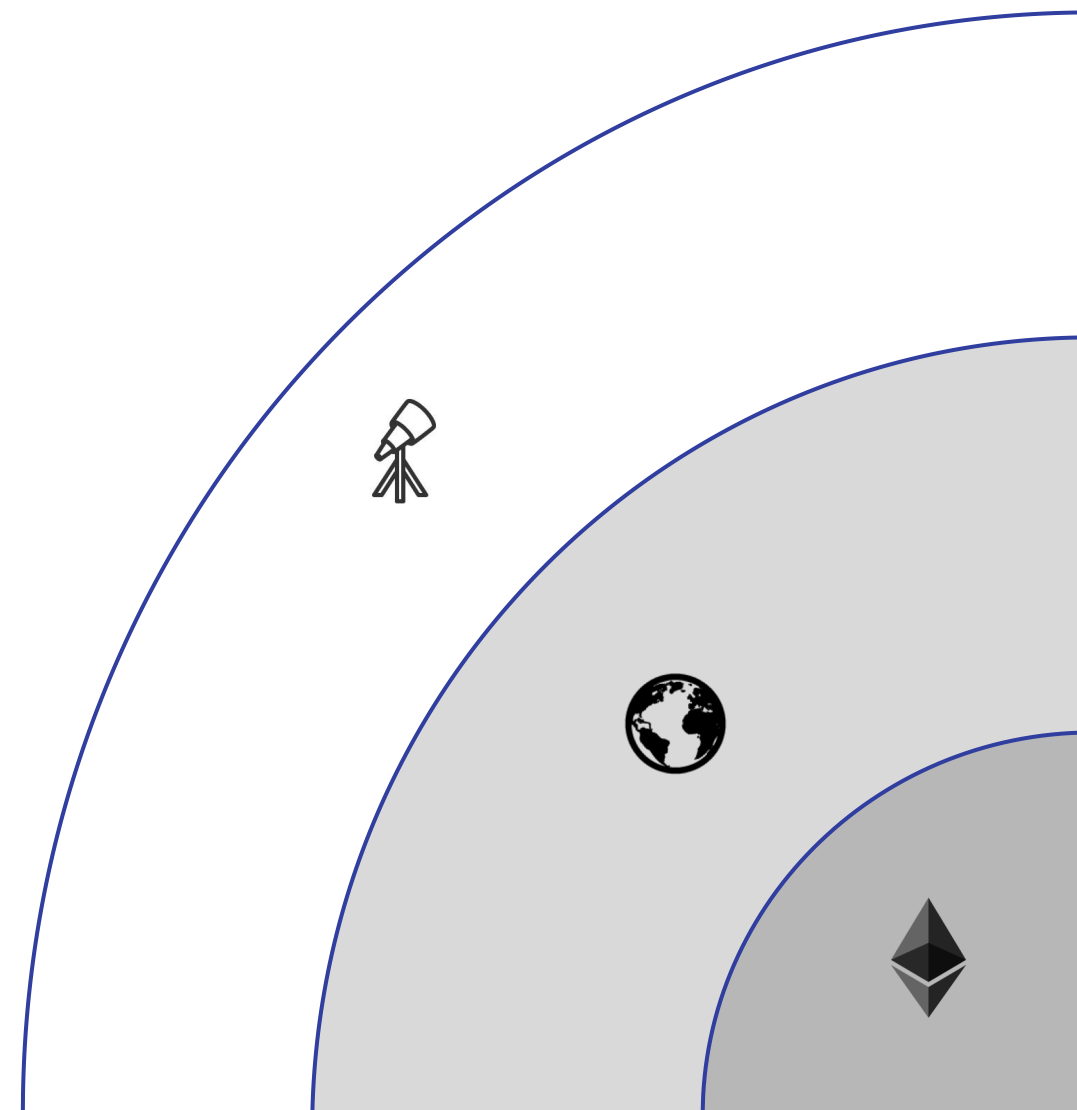
Our vision is a world in which **distributed applications** and the Ethereum world computer **enable a new class of frictionless, global commerce with inclusion for all.**

## MISSION

Our mission is to assemble the tools needed to build and scale the **emerging economic, social, and political operating system for the planet.**

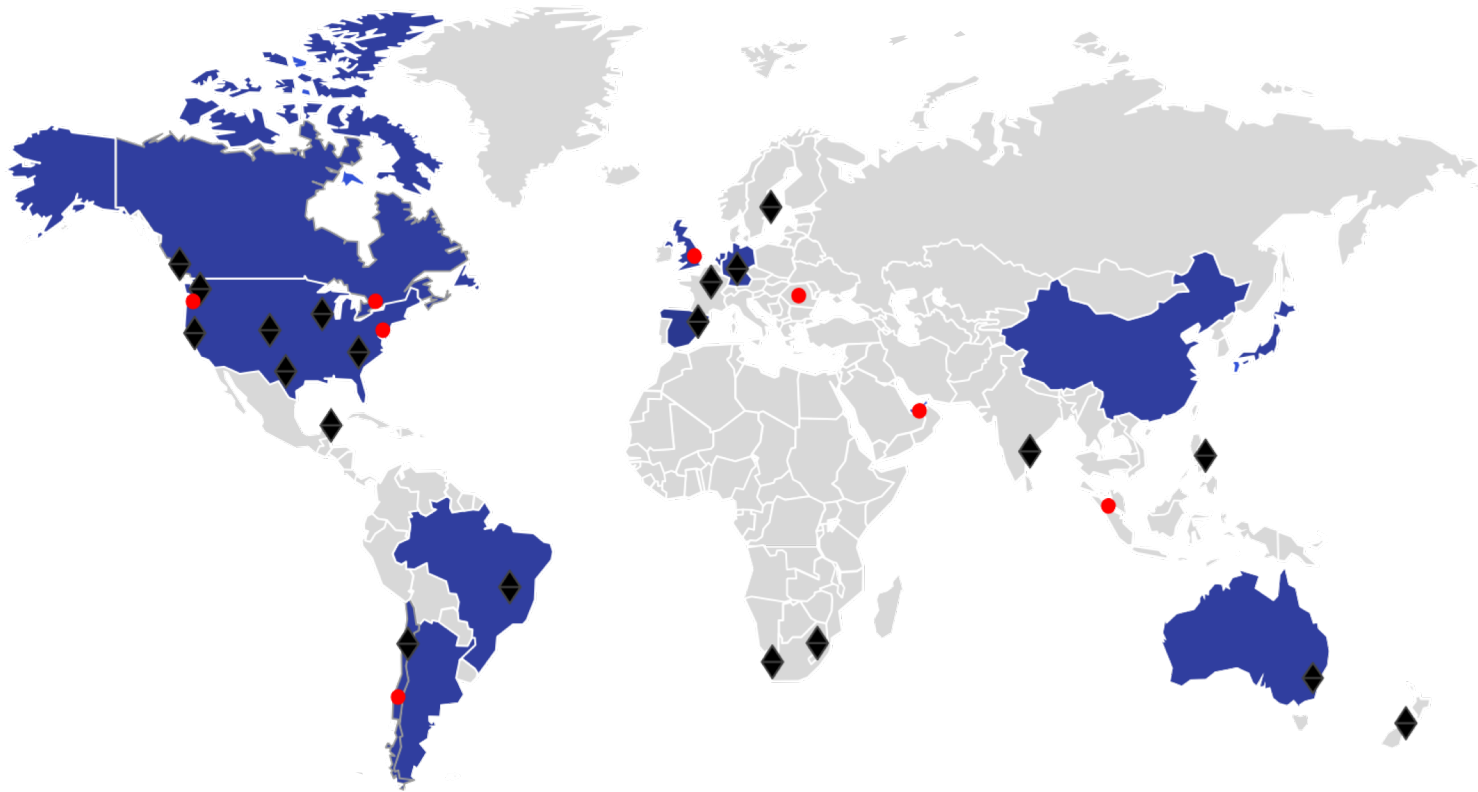
## PLATFORM

Envisioned to go well beyond the capabilities embodied within the Bitcoin blockchain, **Ethereum** came into existence with the purpose of becoming **the world computer.**



# Global

350+ blockchain experts, entrepreneurs, computer scientists, designers, engineers, consultants and business leaders with delivery experience across 6 continents



- Project delivery locations
- Office locations
- ConsenSys Personnel



TOP 5 ENERGY COMPANIES

دبي الذكية  
SMART DUBAI



Monetary Authority of Singapore

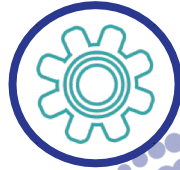


# Venture Production Studio

Building infrastructure, developing products, serving Enterprises and growing the ecosystem

## INFRASTRUCTURE

Help grow the ecosystem by building and maintaining core developer tools and clients



## PRODUCTS

Incubate new companies developing decentralized applications on the Ethereum blockchain

## ECOSYSTEM DEVELOPMENT

Drive development of ecosystem through focus groups



Enterprise  
Ethereum  
Alliance

Blockchain for  
Social Impact

## CAPITAL

Provides token services, crypto asset management and venture capital

## ENTERPRISE & GOVERNMENTS

Consult and deliver production ready blockchain solutions for the Enterprise and Government markets

## EDUCATION

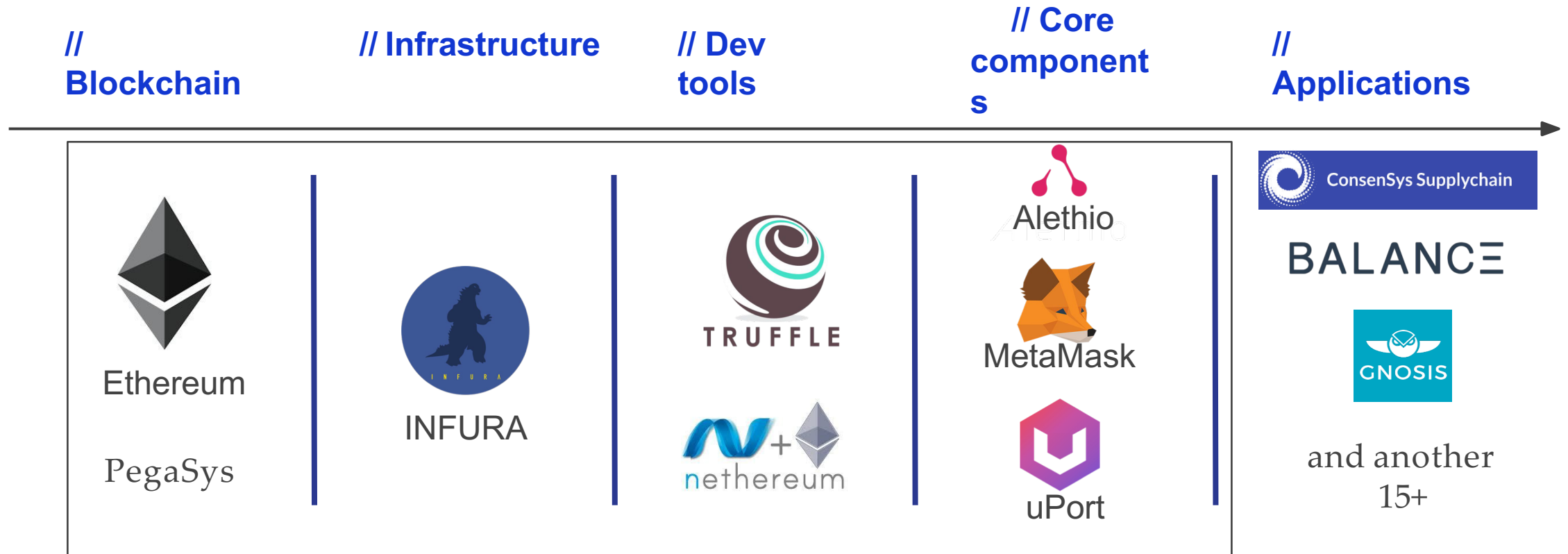
Educate developers and entrepreneurs about Ethereum through training programs.

Accounting  
Blockchain Coalition







# Infrastructure

As full-stack blockchain company, ConsenSys develops core Ethereum infrastructure and foundational tools to foster broader ecosystem growth



# Product

ConsenSys incubates 20+ projects addressing needs of many industry verticals

	<u>Financial Services</u>	<u>Logistics</u>	<u>Energy &amp; Natural Resources</u>	<u>Government &amp; Education</u>	<u>Advertising</u>	<u>Entertainment</u>	<u>Other</u>
<u>Marketplaces &amp; Solutions</u>	    OMEGA ONE	 Viant.io		     	 CAT  adXchain	  VIRTUE POKER	   Landstream
<u>Applications</u>	 BALANCE	 Viant.io		 ConsenSys Professional			

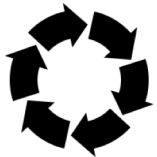


# Core Components: uPort ID

Identity for secure digital interactions. uPort's Ethereum-based, mobile identity solution enables users to unify their digital ID, securely authenticate into services, and digitally sign documents and blockchain transactions.



## 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

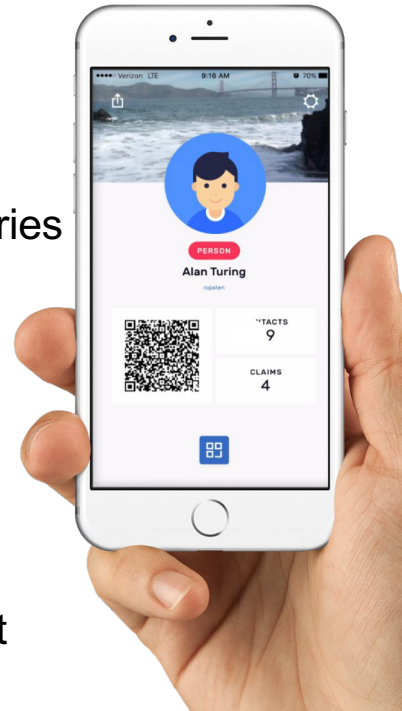
- 10,000 alpha signups
- 2,000 monthly avg. users
- 4,000 twitter followers

## 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



# Core Infrastructure: INFURA

Provides the world with secure, stable, fault tolerant and scalable Ethereum and other decentralized web3 infrastructure, delivering production scale reliability and volume



Public secure TLS gateway to Ethereum and IPFS



Multi-client Ethereum backend



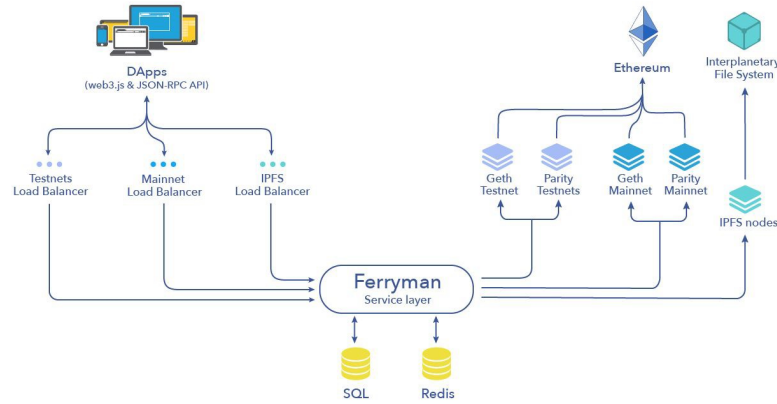
“Ferryman” service layer for smart routing, caching, throttling, logging...



Portable interface compatible with JSON-RPC API and web3.js



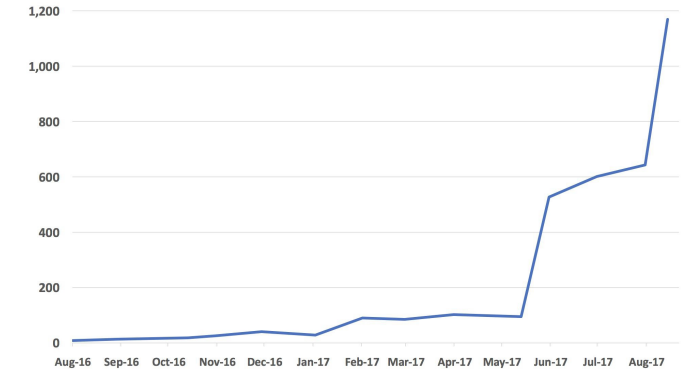
Deployable as a private installation



## Roadmap highlights

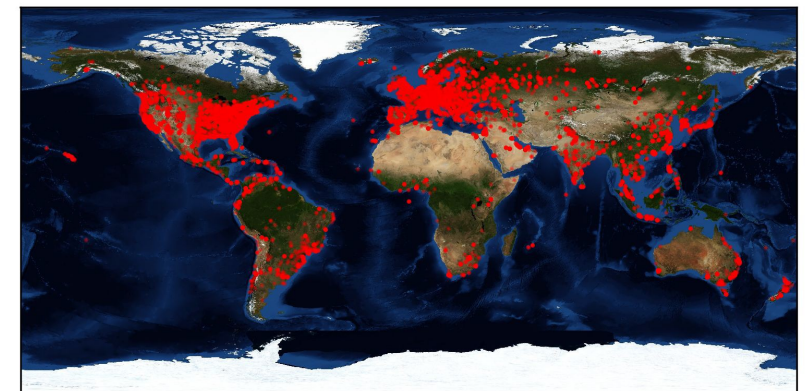
- Production Dapp Infrastructure Services, eg. Token Launches
- Developer Portal
- Dapp Analytics
- Transaction Relay Assurance
- Multi-cloud, global footprint
- Self-service node creation

INFURA Traffic Analysis of Total req/day (millions)



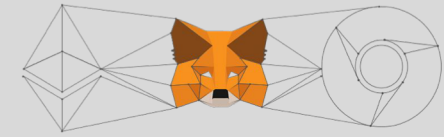
## Adoption

- 1.2 billion requests per day
- Over 2,600 developer sign-ups
- 3,000 Twitter followers



# Core Components: MetaMask

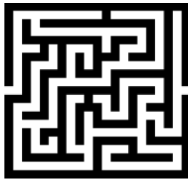
MetaMask allows you to visit the distributed web of tomorrow in your browser today, allowing for secure transaction approval and for users to run Ethereum dApps right in their browser without running a full node



## Tomorrow's web is hard to access today...



*Blockchain often requires specialized software...*



*and new users need an easy entry point to Ethereum...*

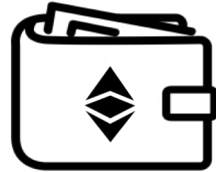


*and solutions to increase user security interacting with dApps*

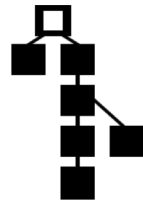
## MetaMask Key features



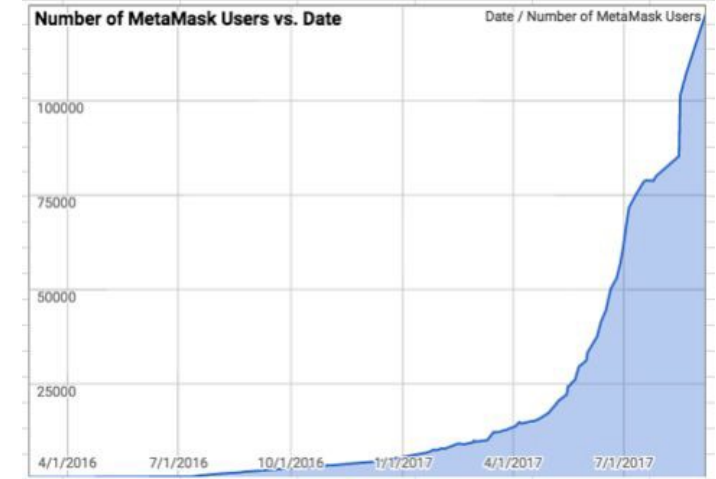
A simple web extension



With an built-in Ethereum wallet...



Gives websites access to the “Web3” API, allowing blockchain lookups, and transaction signing requests.



## Adoption

- 120,000+ users
- 300,000 balance lookups / second
- 6,000 twitter followers

## Roadmap

- MetaMask Mascara (zero-install)
- Multiple key management
- MetaMask IPFS LightClient



# Developer Tools: Truffle

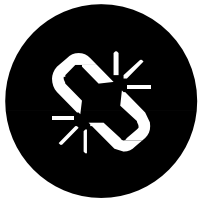
Truffle is a development environment, testing framework and asset pipeline for Ethereum, aiming to make life as an Ethereum developer easier



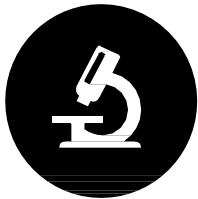
## dApp deployment / interaction features is complex due to:



*A lack of user friendly tools...*



*...and difficulty managing / linking contracts...*



*...as well as a lack of testing facilities.*

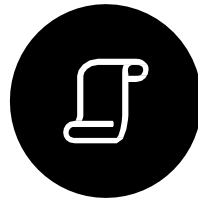
## Truffle Key



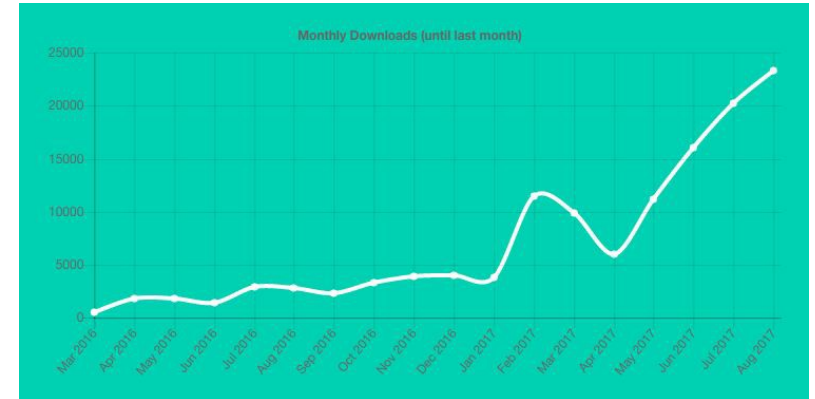
User friendly interface for direct contract communication, management, and execution



Rapid deployment as Truffle is written in Javascript ES6



Automatic smart contract auditing and testing, deployment options for private test networks



## Adoption

- #1 testing tool in Ethereum
- 135,000+ lifetime downloads
- 2,100 github stars (2x more than #2)
- ~1,300 twitter followers

## Roadmap

- Truffle Box Marketplace
  - Truffle UI / Live
  - zkSNARKS / Metropolis
  - Truffle 4.0
  - Eclipse Plugin
  - TruffleCon 1.0



# Education

Bridging the blockchain technology knowledge gap globally

CONSENSYS  
ACADEMY



## Blockchain Venture Plan Competition for MBAs

Educate top business talents and provide high quality blockchain  
provide venture ideas with  
collaboration opportunities



## Blockchain Education for Lawyers

Provide high quality blockchain  
and practicing lawyers



## Blockchain Education for Enterprise & Government

Train Enterprises and  
Governments globally on  
blockchain and support ideation  
workshops to identify proof-of-  
concepts for further development  
<https://ConsenSys.net/academy/>



## Online Self- Paced Modules

Provide high quality online  
self-paced modules for  
developers, technical  
non-developers, and  
non-technical audiences

© 2017 ConsenSys

CONSENSYS  
ACADEMY

FOR ENTERPRISES

FOR DEVELOPERS

MBA COMPETITION

THE FUTURE

RESOURCES

twitter in facebook

## TRANSFORM YOUR BUSINESS WITH ETHEREUM

Understand the fundamentals of Ethereum and its potential to revolutionize  
business.



## Token Services

Helping exceptional projects create and launch properly designed cryptosystems and utility tokens.

## ConsenSys Diligence

Committed to raising the bar in the Ethereum ecosystem by promoting technical excellence, security best practices, legal precautions, and ethical business practices, through smart contract code review, development of security tools and public certification & endorsement.

## Asset Management

Providing institutional investors a vehicle to have exposure to digital assets and risk.  
Digital asset custody for institutions requires a new type of custodian providing new safekeeping services. Services cover secure cold storage, private key management, preferential & off-chain OTC token processing and full reporting and auditing

## Custody Services

## Consensys Ventures

The venture capital arm of ConsenSys, providing financing to breakthrough blockchain companies. Working on the cutting-edge of blockchain, with highly-experienced experts who understand the nuances of this new technology and the depth of knowledge available throughout the Ethereum Blockchain network.





# ConsenSys

## Enterprise

ConsenSys Enterprise's primary purpose is to help enterprises and governments understand, and where appropriate, adopt blockchain technology



### Consulting

Key area for testing market demand for products and validation of products, both for enterprises and for our B2C dApps.

Drives adoption of Ethereum and associated distributed technologies in addition to already being monetizable. Feeds into decision making process, for enterprise products and funding R&D for public DApps.

**Business model  
prototyping**

**Market analysis**

**Customer**

**research**



### Training & Support

As more institutions are increasingly interested in blockchain applications and interacting with digital assets, greater need for training and support.

ConsenSys is developing Enterprise training through ConsenSys Academy. Support focuses on both protocol level development and core tools and applications.

**Strategy  
workshops**

**Education  
sessions**



### Software & Products

From concept to functioning prototype, our solutions turn blockchain strategies into a proven reality.

Our solutions include rapid prototyping, solution delivery, systems integration and pre-built, domain specific solutions.

**Rapid prototyping  
Solution delivery**

**Systems**

**integration**

**Pre-built, domain specific solutions**



# ConsenSys Diligence

Raising the bar for security best practices in the Ethereum ecosystem

Committed to improving the Ethereum ecosystem by promoting technical excellence, security best practices, legal precautions, and ethical business practices.

The project's initial focus is security and code review, and could potentially extend in the future to assessment of legal arrangements, business case analysis, gas efficiency optimization, and beyond.

---

## CODE REVIEW

Audit and review services for both internal, and external clients based on smart contract development best practices.

## SECURITY TOOLS

Aiming to contribute to the developer community and increase the overall quality and security of the ecosystem, ConsenSys Diligence will be creating open source contributions in this space.

## PUBLIC CERTIFICATION / ENDORSEMENT

Allowing clients to publicize that ConsenSys Diligence has reviewed their code base provides a clear indication to interested parties.



**CONSENSYS  
DILIGENCE**



# Enterprise Ethereum Alliance

The Enterprise Ethereum Alliance has grown to over 150 member and is currently the largest Blockchain working group in the world



## MISSION & VISION

### Enterprise Ethereum Alliance offers:

- A clear roadmap for enterprise features and requirements
- Robust governance model and accountability, clarity around IP and licensing models for open source technology
- Resources for businesses to learn about Ethereum and leverage this groundbreaking technology to address specific industry use cases

### Enterprise Ethereum will:

- Be an open source standard, not a product
- Address enterprise deployment requirements
- Evolve in tandem with advances in public Ethereum
- Leverage existing standards (ISO/SWIFT/etc.)

## WORKING GROUPS

- Advertising
- Insurance
- Tools & Integrations
- Banking
- Supply Chain
- Healthcare
- Token
- Legal Industry
- Quorum



# The Accounting Blockchain Coalition

ConsenSys organizes the Accounting Blockchain Coalition (ABC) to understand the impact and opportunities that blockchain technology brings to the accounting industry.



Our mission is to develop standards that bring **transparency, accountability and efficiency** to accounting treatment around the world. We aim to develop **trust, growth and long-term financial stability** of the global economy.

## WORKING GROUPS

Auditing of Token Issuers

Token Standards of Assets

Taxation of Virtual Currency,  
VAT, Transfer Pricing

Digital Asset Management

Enterprise Resource  
Planning (ERP) System



# Blockchain for Social Impact Coalition

ConsenSys launched the Blockchain for Social Impact Coalition (BSIC) to incubate, develop, and implement blockchain-based solutions that address challenges across the United Nation's Sustainable Development Goals



We aim to inspire, federate, and create bridges between NGO's, government agencies, foundations, impact investors, philanthropists, and technologists, and **increase the economic, political, and social prosperity of individuals and communities** using blockchain.

## WORKING GROUPS

Financial Inclusion

Identity & Vulnerable Populations

Energy & Environment

Supply Chain

## ACTIVITIES



Consulting



Research and Publications



Hackathon



Meetups



Annual Conference



Speaking Opportunities



# Why ConsenSys?

1

## LOCAL PRESENCE

ConsenSys have a number of employees in South Africa and will officially open their office here in early 2018



2

## INDUSTRY EXPERTISE

Our advisory and delivery teams have decades of experience with large financial institutions



3

## SCALE

ConsenSys has over 350 blockchain experts, more than any other independent company



4

## FLEXIBILITY

An entrepreneurial mindset combined with open-source philosophy and infrastructure agnostic tools



5

## SECURITY

Our team of experienced developers have deployed smart contracts protecting over \$10B in digital assets, and our projects have been subject to extensive global scrutiny





# ConsenSys is core to the Ethereum ecosystem

## Blockchain Consortium Membership

- ✓ ConsenSys is a founding member of the **Enterprise Ethereum Alliance**, the largest blockchain consortium globally with 150+ members



**EEA**

## Global Innovation

- ✓ ConsenSys **co-founded Ethereum** and is a key ecosystem contributor
- ✓ ConsenSys has **strong partnerships** with major tech companies like **Microsoft**



**Coco Framework**

## Education

- ✓ **ConsenSys Academy** is providing training & hackathons to develop Dubai's blockchain ecosystem
- ✓ Over 150 students will be graduating in Dubai from the Academy's online Ethereum course on October 19th

**CONSENSYS ACADEMY**

## Industry Leadership

- ✓ ConsenSys co-founded **identity, accounting & web blockchain working groups**





CONSENSYS

# THANK YOU!