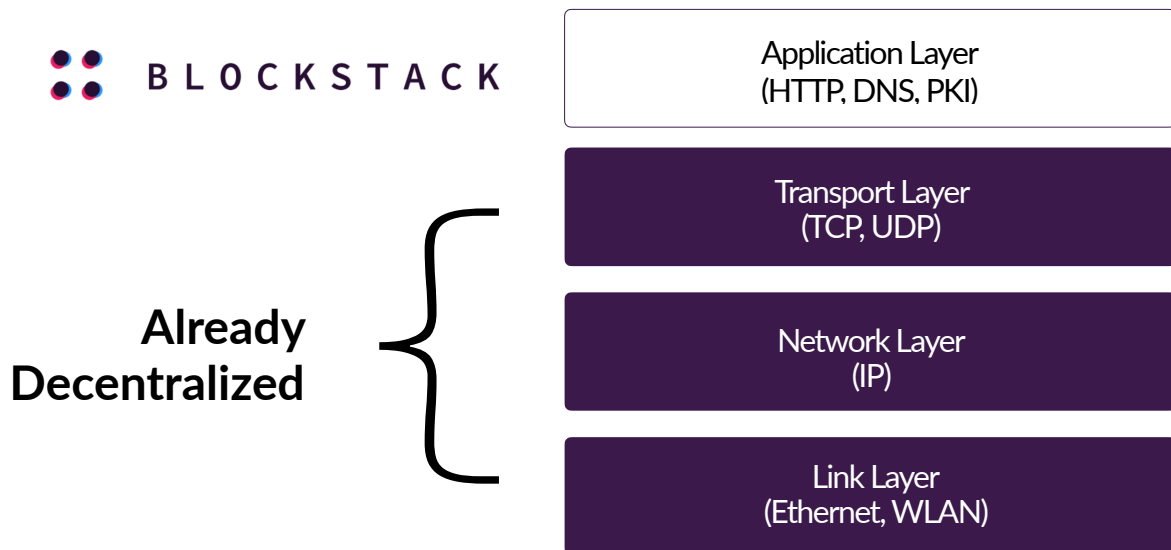


Blockstack Overview

November, 2017

By Blockstack Token LLC
token@blockstack.com

Blockstack is a new internet for decentralized apps



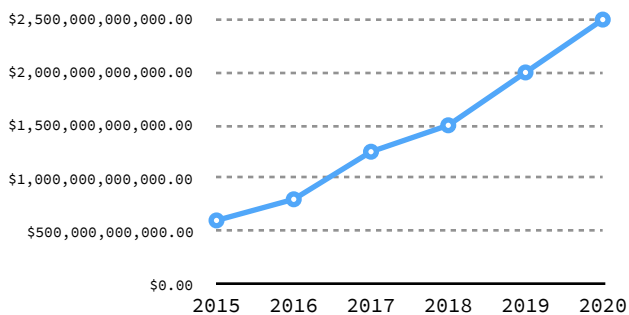
The internet was designed to be decentralized but as time went on, it fell under the control of a few large corporations. This consolidation represents a major threat to data ownership, open markets, and freedom of speech.

The architects of the internet got many things right, but they also missed out on focusing on security in the original design. As a result, internet users everywhere have been much less safe and have had their data placed in much greater risk.

Blockstack is a way to put users back in control of their digital lives.

The Cloud Makes Our Data Vulnerable

Projected costs of data breaches



The internet has become much more important in our daily lives and at the same time it has become a much more dangerous place.

The frequency and severity of attacks has increased at an alarming rate, to the point where the world's largest data breaches today are measured in terms of billions of people - not millions. Further, the cost of data breaches is projected to reach around \$2.5 trillion by 2020.

The traditional model for applications requires us to blindly trust a few companies with our data and store it in "data banks" in the cloud. But this is precisely the model that makes us less safe.

A new model is must emerge that puts us back in control.

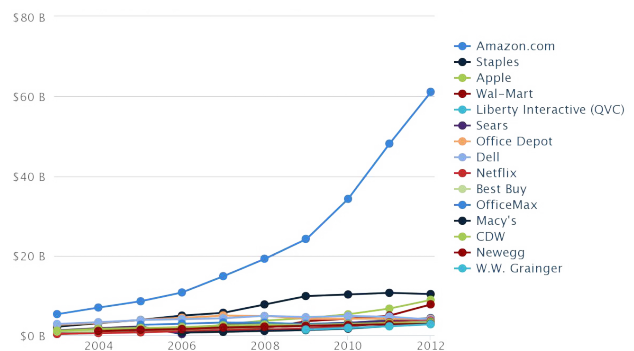
Centralized platforms threaten freedom and innovation

The internet began as an open platform where anyone could publish content and anyone could communicate with anyone else.

Over time, unfortunately, certain companies started accumulating a shockingly large amount of power over people's experiences on the internet, locking in users and exerting control over their experiences.

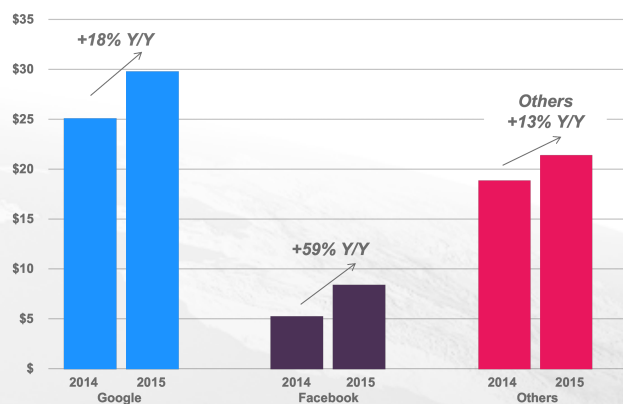
The internet needs to remain a platform for freedom and innovation, but the emergence of internet monopolies threatens that future. The way forward requires a system that has no centralized points of failure and control.

Internet Retailers



Source: The Wall Street Journal

Advertising Revenue (\$B)



Source: Internet trends 2016, Mary Meeker of KPCB

The Next Wave of Computing

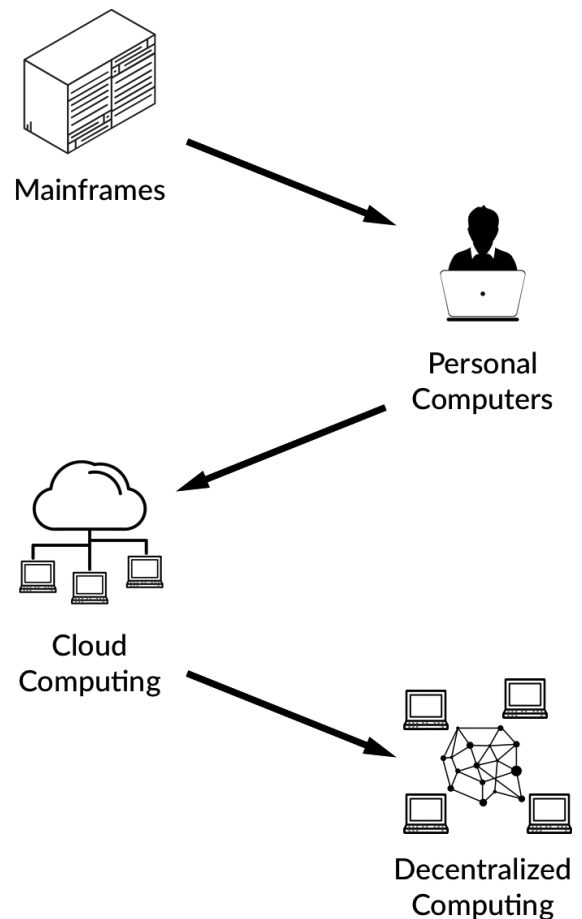
Computing systems have followed a swing of a pendulum, with centralized computing on one end and decentralized computing on the other.

The mainframes of the 60s and 70s had a “centralized” computing model where a single mainframe would serve an entire office building.

The desktop revolution of the 1980s and 1990s was a massive shift away from mainframes and people had computers in their homes.

In the 2000s and 2010’s we saw a shift towards cloud computing, where our laptops became just screens, with all of our computation being sent to the cloud.

The next wave of computing is going to be a shift away from cloud computing towards decentralized computing. Blockstack aims to accelerate and facilitate this new age of decentralized computing.



The History of Blockstack

Blockstack was started by Ryan Shea and Muneeb Ali in 2013. They met at the CS department at Princeton University.



Muneeb and Ryan went through Y Combinator in the Summer of 2014. Union Square Ventures (USV) led the Seed round.



In 2016, the developer community grew to over 1000 people, development began on the Blockstack Browser, and the core team raised \$4M in a Series A funding round led



A \$25M fund, called the Signature Fund, was launched for decentralized apps built on Blockstack. The fund received 150+ submissions within weeks.



The first component of Blockstack, a decentralized identity system, launched in March 2014; one of the first non-financial applications utilizing blockchain technology.

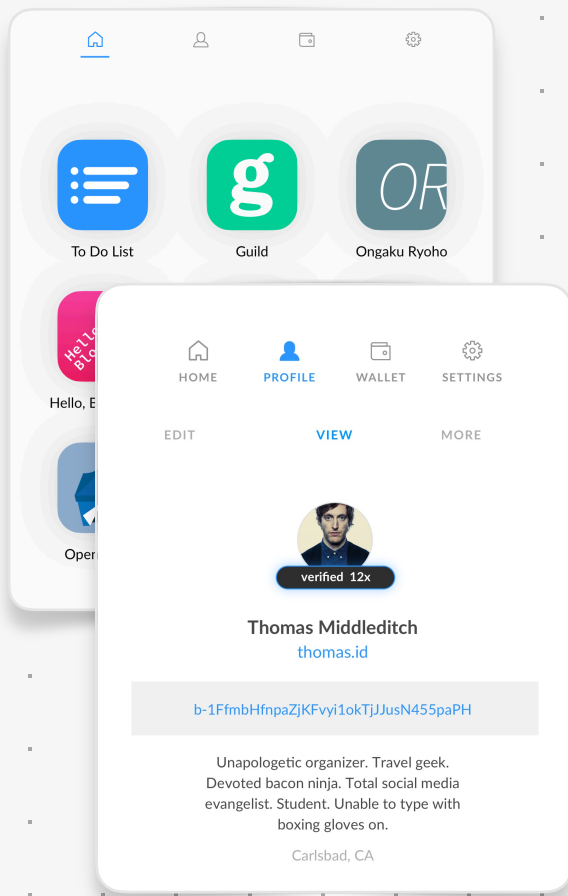
In 2015, the team grew to 4 people, built a decentralized domain name system and introduced blockchain virtualization tech.

In 2016, three peer-reviewed research publications come out of the work.



In 2017, the Blockstack developer platform was launched with a developer-release of Blockstack Browser and a decentralized storage system. The developer community grew to 8000 people around the world.

Blockstack Inc. was transformed to Blockstack Public Benefit Corp in Sep 2017



How Blockstack Works

Users download Blockstack and it installs everything they need to gain access to the new internet for decentralized apps.

Users create an account and a keychain is created on user devices. This keychain lets them sign and encrypt their files locally before it is synced and backed up to the cloud, enabling true data ownership.

Users create and verify the first identity they truly own, a Blockstack ID. This means strong protection against account hijacking and impersonation. Users can rest easy knowing they're talking to the right people and signing in to the right apps.

Blockstack Infrastructure

The Blockstack Blockchain & P2P Network

The Blockstack blockchain and peer-to-peer network form the secure backbone of the Blockstack network. Protocol operations are embedded in the blockchain and additional data is stored in the peer-to-peer network, known as the Atlas network.

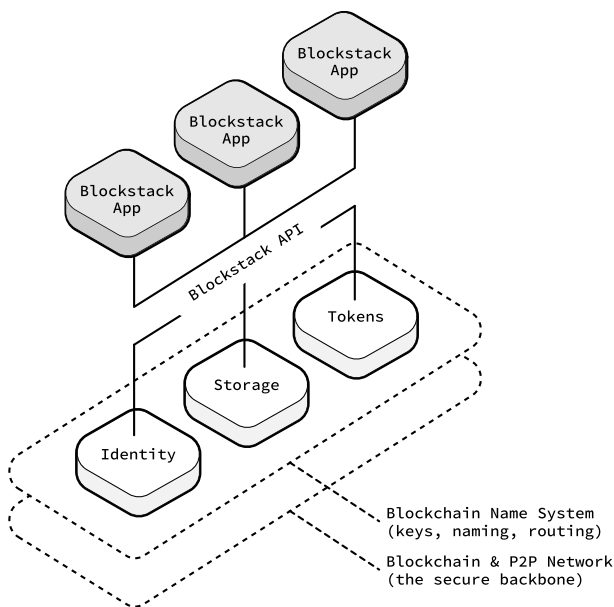
The Blockchain Name System

The Blockchain Name System (BNS) is a replacement for DNS and is meant to provide similar functionality without any central root servers. In BNS, names are owned by cryptographic key pairs.

Protocol operations (registrations, transfers, zone file updates, etc.) are written to the underlying blockchain. All Blockstack nodes pick up and process these operations to construct a state machine that gives BNS global state.

The Blockstack API

The Blockstack API provides methods for identity, storage and tokens. You can read more about this at <https://blockstack.org>.



Peer-reviewed Research

The Blockstack network and token are described in their respective whitepapers



[\(PDF\)](#)



[\(PDF\)](#)

Beyond the main whitepapers, several subparts of the system were previously published in peer-reviewed conferences and research publications:



- ✦ M. Ali, J. Nelson, R. Shea and M. J. Freedman, "Blockstack: A Global Naming and Storage System Secured by Blockchains", 2016 USENIX Annual Technical Conference, Denver, CO, June 2016.
- ✦ J. Nelson, M. Ali, R. Shea and M. J. Freedman, "Extending Existing Blockchains with Virtualchain", Workshop on Distributed Cryptocurrencies and Consensus Ledgers, Chicago, IL, July 2016.
- ✦ M. Ali, J. Nelson, R. Shea and M. J. Freedman, "Bootstrapping Trust in Distributed Systems with Blockchains", USENIX ;login: Issue: Vol. 41, No. 3, Pages 52-58, Fall 2016
- ✦ M. Ali, Trust-to-Trust Design of a New Internet. PhD thesis, Princeton University, June 2017

Blockstack for Developers

Blockstack's developer philosophy for decentralized apps:

1. Existing infrastructure should be reused wherever possible
2. Blockchains should be used as minimally as possible
3. Developers shouldn't have to program on blockchains directly
4. Abstract away core functionality to make building decentralized apps easier than building traditional apps

Identity

```
1 blockstack.redirectUserToSignIn()
2 blockstack.signUserIn(user) => {}
```

Storage

```
1 blockstack.putFile("settings.txt", {})
2   .then(success => {})
3 blockstack.getFile("settings.txt")
4   .then(data => {})
```

Tokens

(Coming soon)

```
1 blockstack.createToken("stacks", 1000000)
2   .then(data => {})
3 blockstack.sendPayment('stacks', 'werner.id', 50)
4   .then(success => {})
```

The Blockstack Software



Blockstack

A new decentralized internet

<https://blockstack.org>

blockstack

Blockstack documentation and protocol specs

★ 1.2k 🍴 122

blockstack-core

The reference implementation of Blockstack

Python ★ 1.2k 🍴 160

blockstack-browser

The Blockstack Browser

JavaScript ★ 794 🍴 106

blockstack.js

The Blockstack JavaScript library for identity, auth and storage

HTML ★ 289 🍴 80

blockstack.org

The Blockstack website

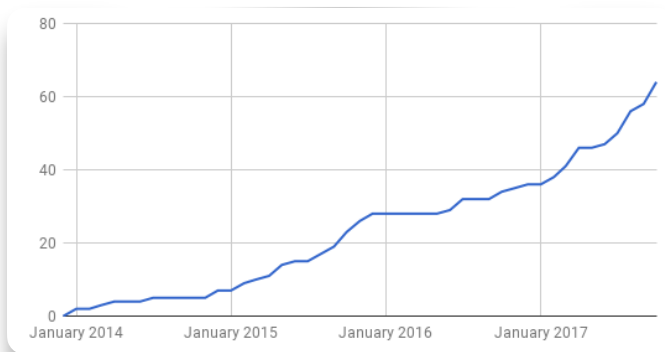
JavaScript ★ 49 🍴 37

blockstack-explorer

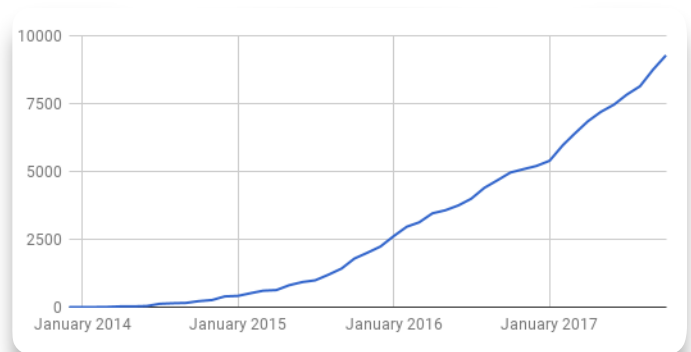
A block explorer for Blockstack

JavaScript ★ 34 🍴 18

- ✓ Hundreds of forks across multiple repositories
- ✓ Rapidly growing GitHub contributors
- ✓ Highly engaged community posting issues, making comments, & submitting pull requests
- ✓ Development & communication in open channels



GitHub committers over time



All commits, pull requests, issues and comments over time

The Global Blockstack Community

Blockstack developer events started in the summer of 2016 and today events are being hosted in 24 cities and 14 countries.

12,977
members

27
Meetups

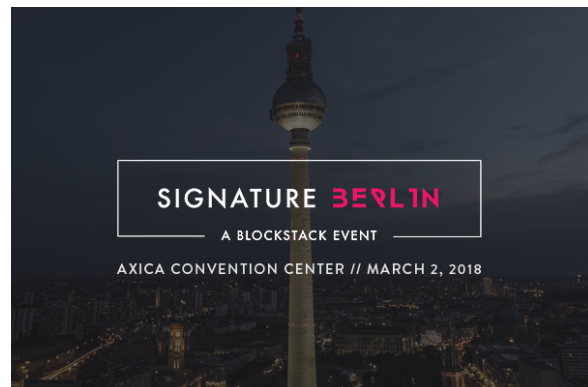


Blockstack Summit 2017
Mountain View, California



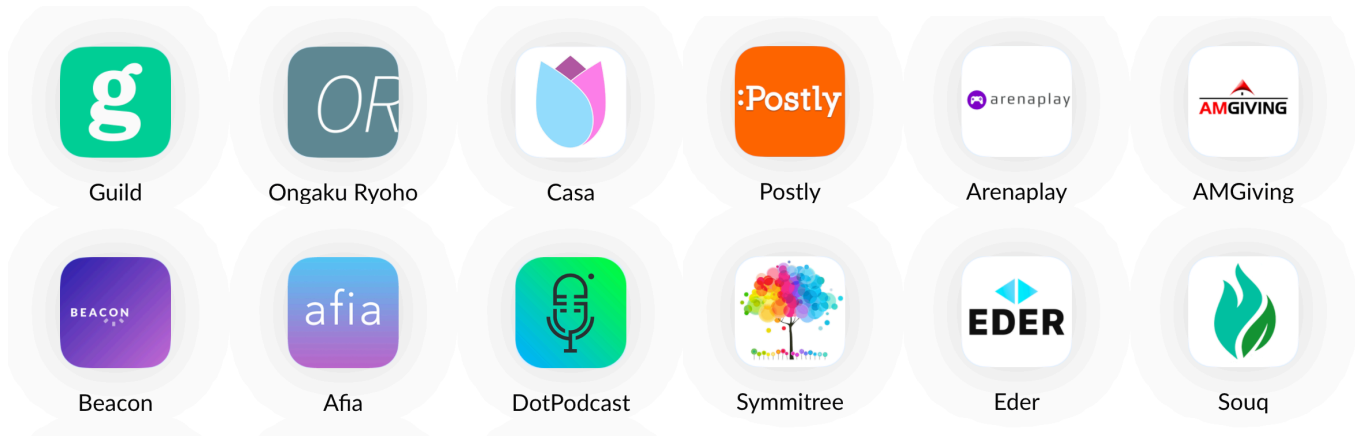
Sold out event with over 400
developers and community members

Signature Berlin 2018
Berlin, Germany

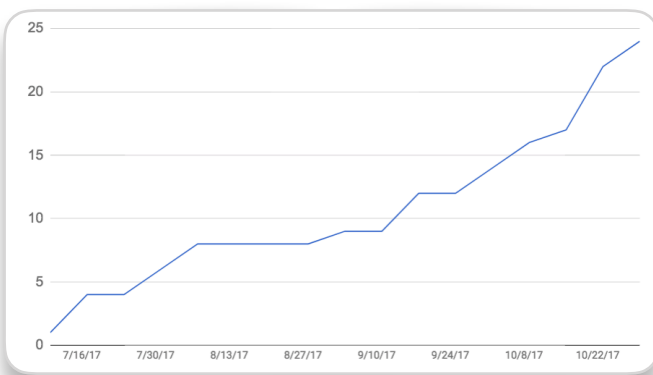


Sold out event with over 400
developers and community members

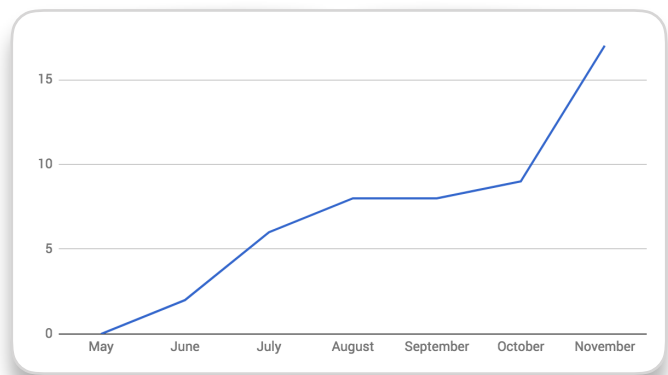
The Blockstack App Ecosystem



- ✓ Rapidly growing platform of decentralized apps
- ✓ \$25M fund to fuel app development
- ✓ Hundreds of teams applying for funding
- ✓ Dozens of teams in the process of building apps



Teams building Blockstack apps via the Signature Fund



Apps listed in the Blockstack Browser

Blockstack Videos

2 million+ views across dozens of videos

Thousands of YouTube subscribers



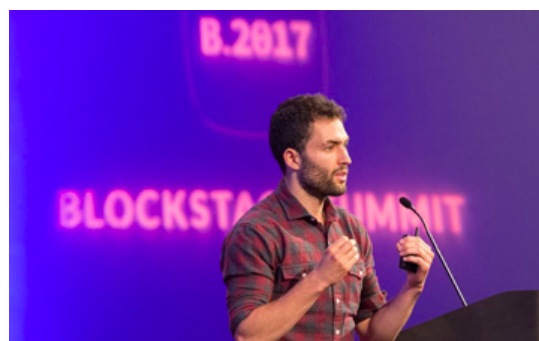
**Blockstack - A New Internet for
Decentralized Apps**



**ReasonTV: A New Internet That Brings
Privacy & Property Rights to Cyberspace**



**Welcome to the new internet -
TEDxNewYork**



**A New Blockstack Internet - Blockstack
Summit**

The Blockstack Team

- ✓ Experts in distributed systems, computer security & product design
- ✓ 5 PhDs from Princeton and Stanford
- ✓ Engineers from MIT and Waterloo
- ✓ Designers & marketers w/ experience running companies since inception



Muneeb Ali
Co-Founder



Ryan Shea
Co-Founder



Jude Nelson
Engineering Partner



Aaron Blankstein
Engineering Partner



Larry Salibra
Engineering Partner



Gina Abrams
People Ops Partner



Guy Lepage
Design Partner



Patrick Stanley
Growth Partner



Jack Zampolin
Engineering Partner



Ken Liao
Engineering Partner



Sebastian Dunkel
Product Support



Shannon Voight
Blockstack Summit



Xan Ditzkoff
Signature Fund



Trevor Owens
Technical Advisor



Michael Freedman
Technical Advisor



JP Singh
Technical Advisor

Existing Investors

Blockstack is an open source project and a Public Benefit Corp. Blockstack PBC has historically taken the lead on Blockstack protocol development, but that has been changing over time as more parties take on greater roles in the protocol's development.

Blockstack PBC works with hundreds of community contributors and has raised venture capital from some of the top investors in the world like Union Square Ventures, Y Combinator, and Naval Ravikant.



Union Square Ventures



LUX Capital



Y Combinator



SV Angel



Shana Fisher



Naval Ravikant



Kal Vepuri



Mike Yavonditte



Digital Currency Group



Version One Ventures



Rising Tide Fund



CompoundVC

Press



Oct 2017

'New internet' looks to keep user data away from tech giants



Sep 2017

Blockstack On How To Take Control From Google, Facebook And Amazon



Aug 2017

Blockstack Launches \$25 Million Fund for Blockchain Startups



Aug 2017

Investor Naval Ravikant Wants to Disrupt Twitter With Blockchain 'XPRIZE'



May 2017

Meet the Team Making This Season's Pied Piper on 'Silicon Valley' Real



May 2017

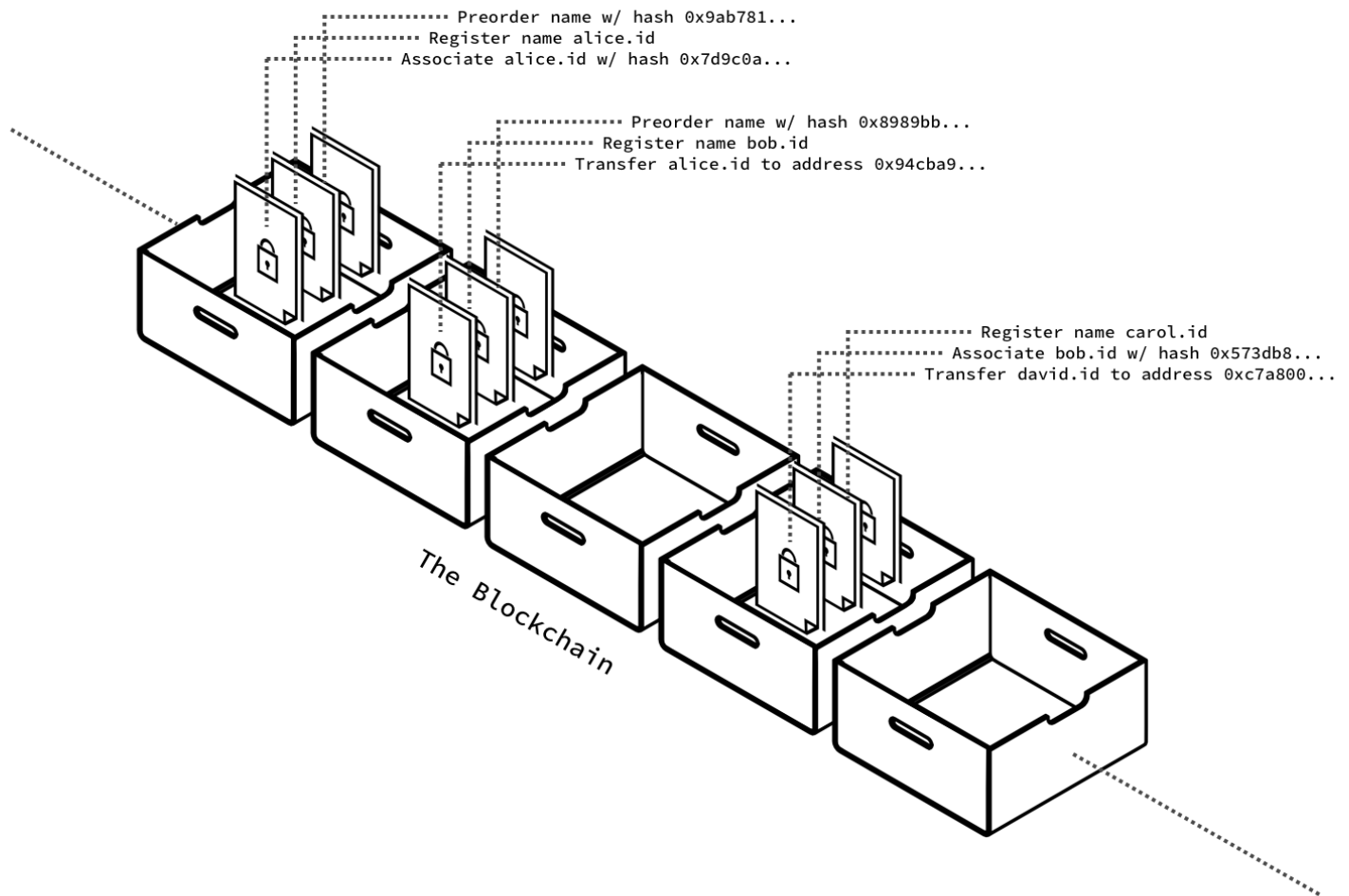
This Blockchain Startup Wants to End Corporate Dominance of the Internet



Jan 2017

One Startup's Vision to Reinvent the Web for Better Privacy

The Blockstack Token

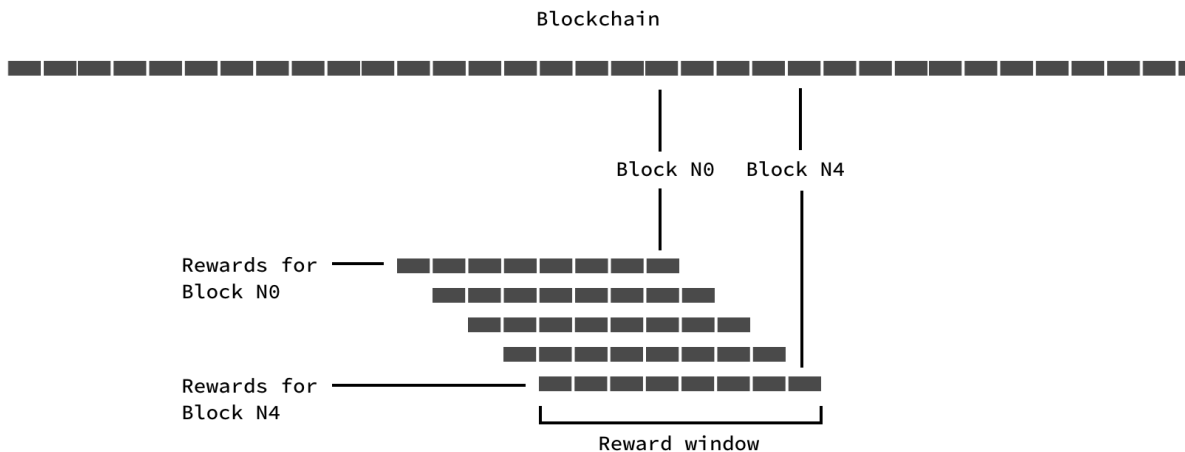


The Blockstack Token is required for operations on the Blockstack blockchain:

1. domain registrations
2. user ID registrations
3. app registrations
4. namespace creation

Token Mining and Incentives

Mining rewards are released in 3 ways: proof-of-burn mining, app-rewards mining, and web-of-trust mining.



Blockstack Token Whitepaper

Ryan Shea
Muneeb Ali

A Token Mechanism for Growing the Blockstack Ecosystem of
Decentralized Applications

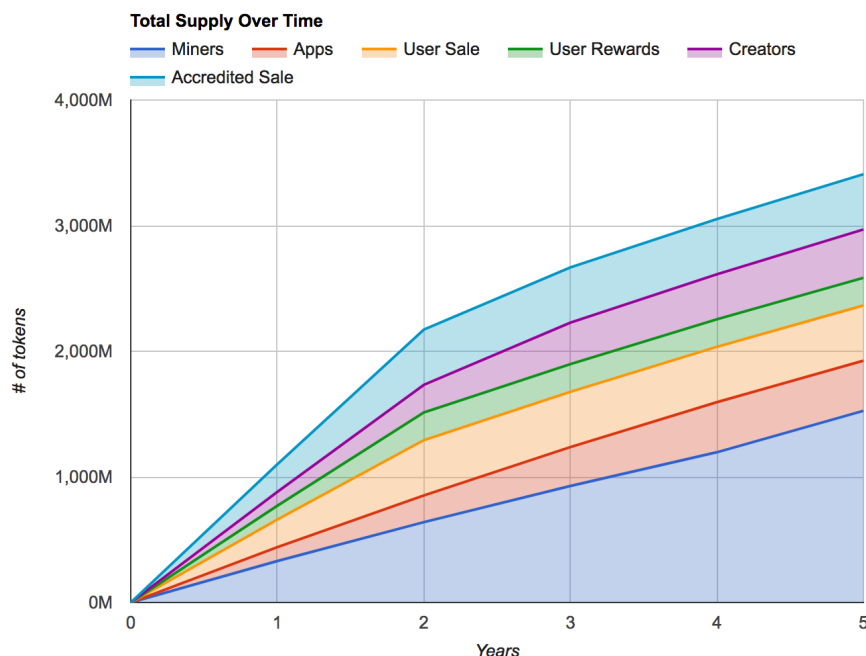
<https://blockstack.com>
Token Whitepaper Version 1.0
October 12, 2017

The Blockstack token is a major upgrade to the Blockstack network:

1. Incentive mechanisms for ecosystem growth
2. Decentralized governance of protocol upgrades
3. Support for truly independent mobile clients
4. Advanced features like atomic swaps

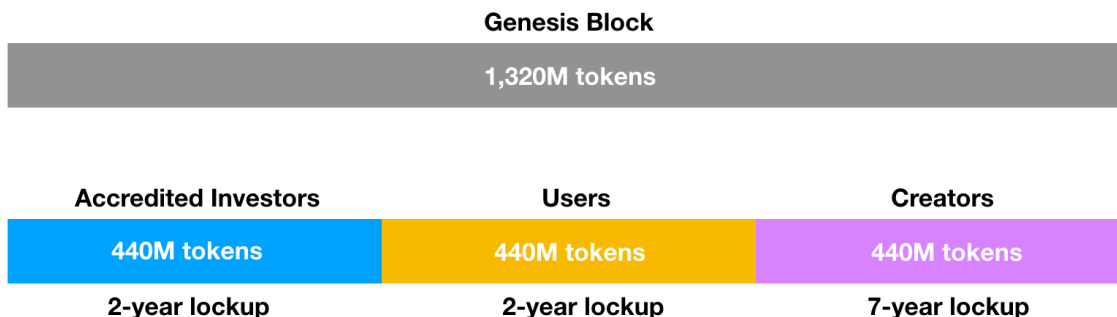
Read more about the Blockstack token in the Blockstack Token Whitepaper at
blockstack.com/tokenpaper.pdf

Token Distribution



The Blockstack token starts with an initial distribution via the Blockstack Genesis Block. This includes an accredited investor sale, a distribution to users, and a distribution to the creators.

After the genesis block, new tokens will be created via a mining process that releases tokens in a three part fashion: proof-of-burn mining, app-rewards mining, and web-of-trust mining.



Read more about the Blockstack token distribution in the Blockstack Token Mechanics and Distribution document blockstack.com/distribution.pdf