Why we believe Bitcoin may be the most important technology of this decade.

ANDREESSEN HOROWITZ

About me

Just a quick introduction.

Balaji S. Srinivasan (@balajis)

CEO of 21.co, Partner at Andreessen Horowitz. PhD EE, Stanford. Co-founder/CTO of Counsyl (Thiel/FF), Stanford MOOC (200k students)

ANDREESSEN HOROWITZ

Counsyl

LELAND STANFORD JUNIOR UNIVERSITY
1891

What is this Internet thing anyway?

Step back with me to 1994.

What is "Internet"?

This is how things played out two decades ago.

What is "Bitcoin"?

That's what we'll talk about today.

The Andreessen Horowitz Thesis on Bitcoin

Five key facts about Bitcoin that inform our thinking, and answers to some FAQs.

BITCOIN IS A PROTOCOL

Payments are now packets

BITCOIN IS HERE TO STAY

Extraordinary institutional/sovereign support

BITCOIN IS BIGGER THAN GOOGLE

Mining now world's largest supercomputer

BITCOIN HAS A NETWORK EFFECT

Four sides: Miners, Devs, Merchants, Users

BITCOIN IS OPEN SOURCE

Extensible, programmable, rapidly improving

THE A16Z BITCOIN FAQ

And the most important q in Bitcoin.

Bitcoin is a Protocol

Payments are now packets

In what sense is Bitcoin a protocol?

To understand the progression of ideas, begin with physical cash.

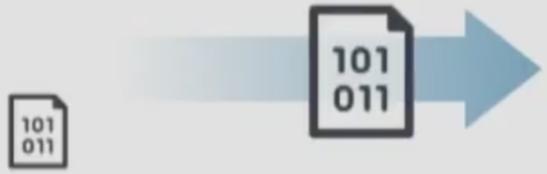
1 PHYSICAL CASH

A hands **B** physical cash.

Implicit property: **A** no longer has the bill, and **B** knows **A** has transferred it.

Many tried to create a "digital cash"

But naively transplanting cash to the digital world doesn't work.



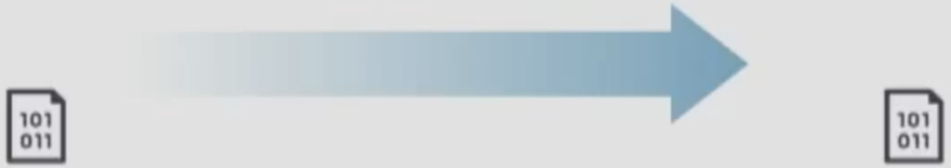
2 NAIVE DIGITAL CASH

A emails **B** the serial numbers on a bill.

But **A** still has those serial numbers — and temptation to “double spend”.

Banks solve this in a centralized way

Each transaction is recorded in a central database, with update permitted only by a short list of trusted financial intermediaries.



3 CENTRALIZED DIGITAL CASH

A sends **B** money.

C, a centralized bank, records debit/credit.

Bitcoin solves in a decentralized way

Each transaction is pushed out to a distributed database (the Blockchain), updated by a decentralized network of miners.

4 DECENTRALIZED DIGITAL CASH

A sends **B** money.

A global network of “miners” now records the debit/credit.

How does Bitcoin solve the decentralization problem?

Key idea: Byzantine Generals. Permits update of distributed blockchain database in adversarial environment.

Double spending prevented by the blockchain, a distributed ledger of all transactions

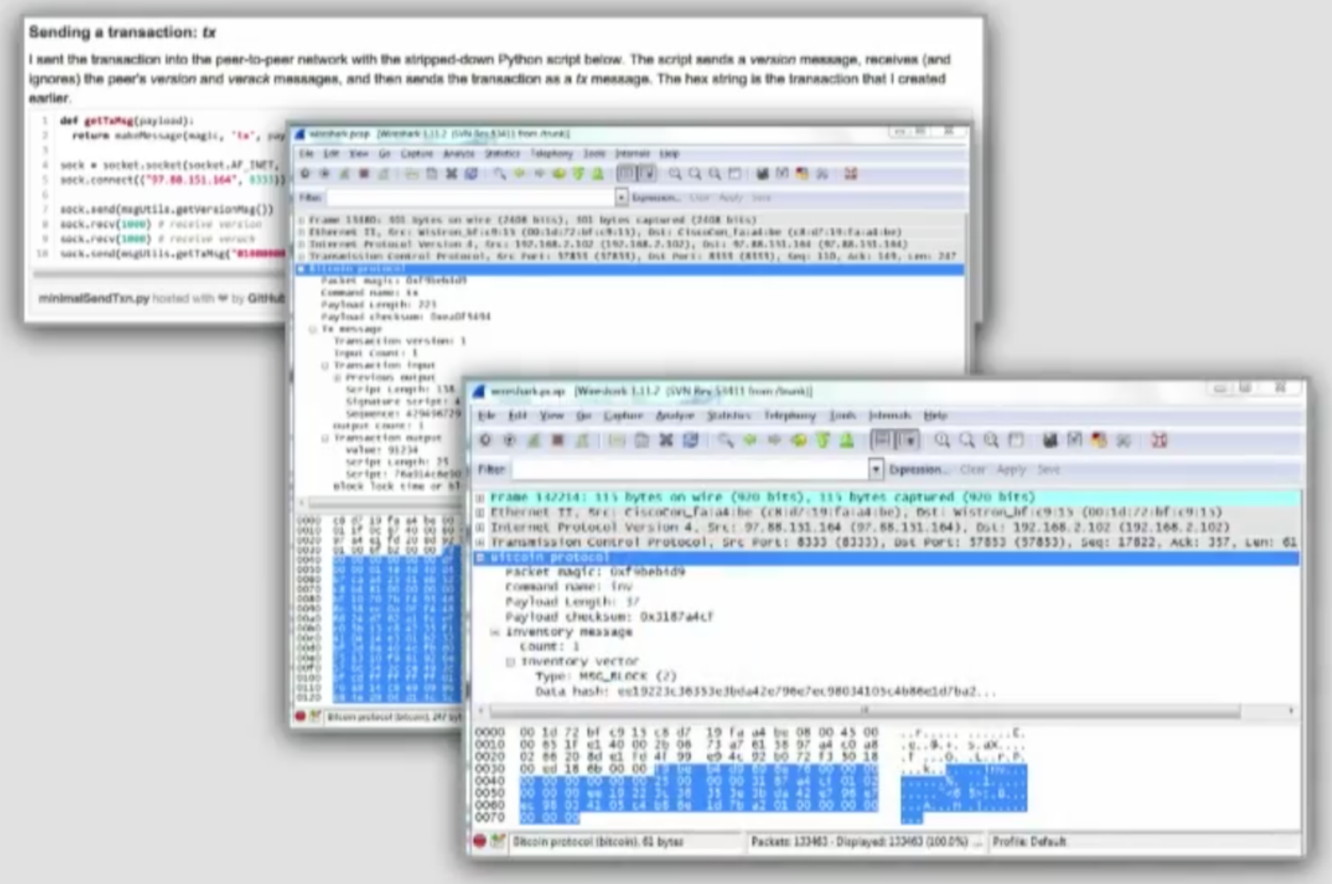
Transactions are aggregated into blocks and chained together to form the blockchain

The majority decision is represented by the longest chain, which has the greatest computation invested in it

The system remains secure if the majority of computational power remains controlled by honest participants

In other words: Bitcoin is a protocol

A transaction is literally a series of bytes broadcast over the internet to a P2P network of miners, with ack after mining.



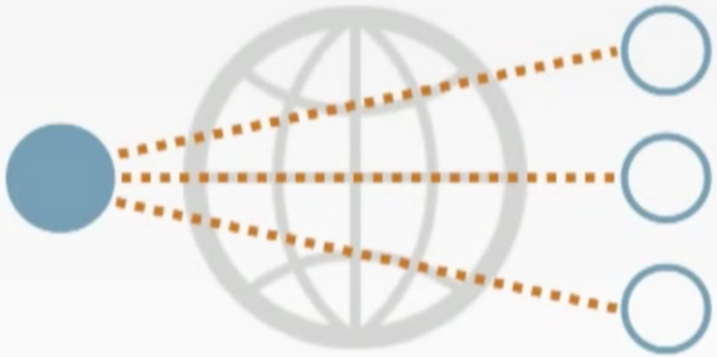
This is why we compare Bitcoin to the Internet

The internet disintermediated telcos, replacing with programmable packet-based communication.

BEFORE

Deal with telco to deploy code related to information on the network backbone

AFTER



Anyone can programmatically send packets to anyone (or many anyones) via internet

Bitcoin disintermediates banks

Similarly, Bitcoin disintermediates Fedwire/ACH/SWIFT, replacing with programmable packet-based money.

BEFORE

Deal with bank to deploy
code related to value
in the banking system

AFTER

Anyone can programmatically
send value to anyone
(or many anyones) via Bitcoin

To the end user, Bitcoin is like email

Like email, others can send to your public Bitcoin/email address - but only you can send out w/ your private key.

joe@gmail.com	**Anyone** can send you email if they know your public email address.
**********	But **only you** can send email from that account with your private email password.
15qSxP1SQcUX3o4nhkfdbgyoWEFMomJ4r	**Anyone** can send you Bitcoin if they know your public Bitcoin address.
**********	But **only you** can send Bitcoin from that address with your private Bitcoin key.

Just like there is no ‘email.com’ that owns email, there is no ‘bitcoin.com’ that owns Bitcoin; **the code is open-source.**

Bitcoin is here to stay

Institutional acceptance now beyond tipping point

Bitcoin Timeline

Over the last 18 months, incredible mindshare growth in both government and institutional finance.

Government

Ben Bernanke
May hold "long-term promise"

Janet Yellen
No authority for Fed to regulate

Larry Summers
Critics "on wrong side of history"

California
AB129: Bitcoin is legal money

Finance

NASDAQ
Endorses Bitcoin ETF

BitBeat
Daily coverage of Bitcoin news

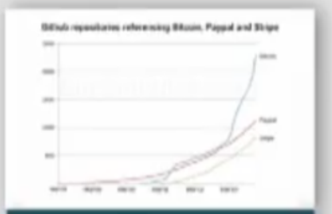
Bloomberg
BTC price on terminals

Wall Street
Reports from GS, MS, BofA, Citi

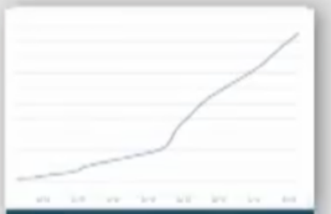
Bitcoin Timeline

...and not just in government/financial sector, but tech & market mindshare as well.

Tech



Developers
4000+ GitHub repos



Wallets
8M+ wallets (BC + CB + Circle + ...)

Google
Integration July 2014

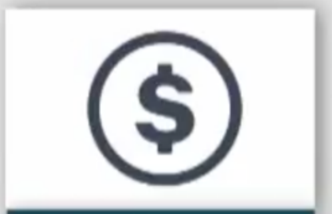
Startups
500+ Bitcoin startups

Market

Merchants
5000+, including Dell & Expedia

PayPal
Integration September 2014

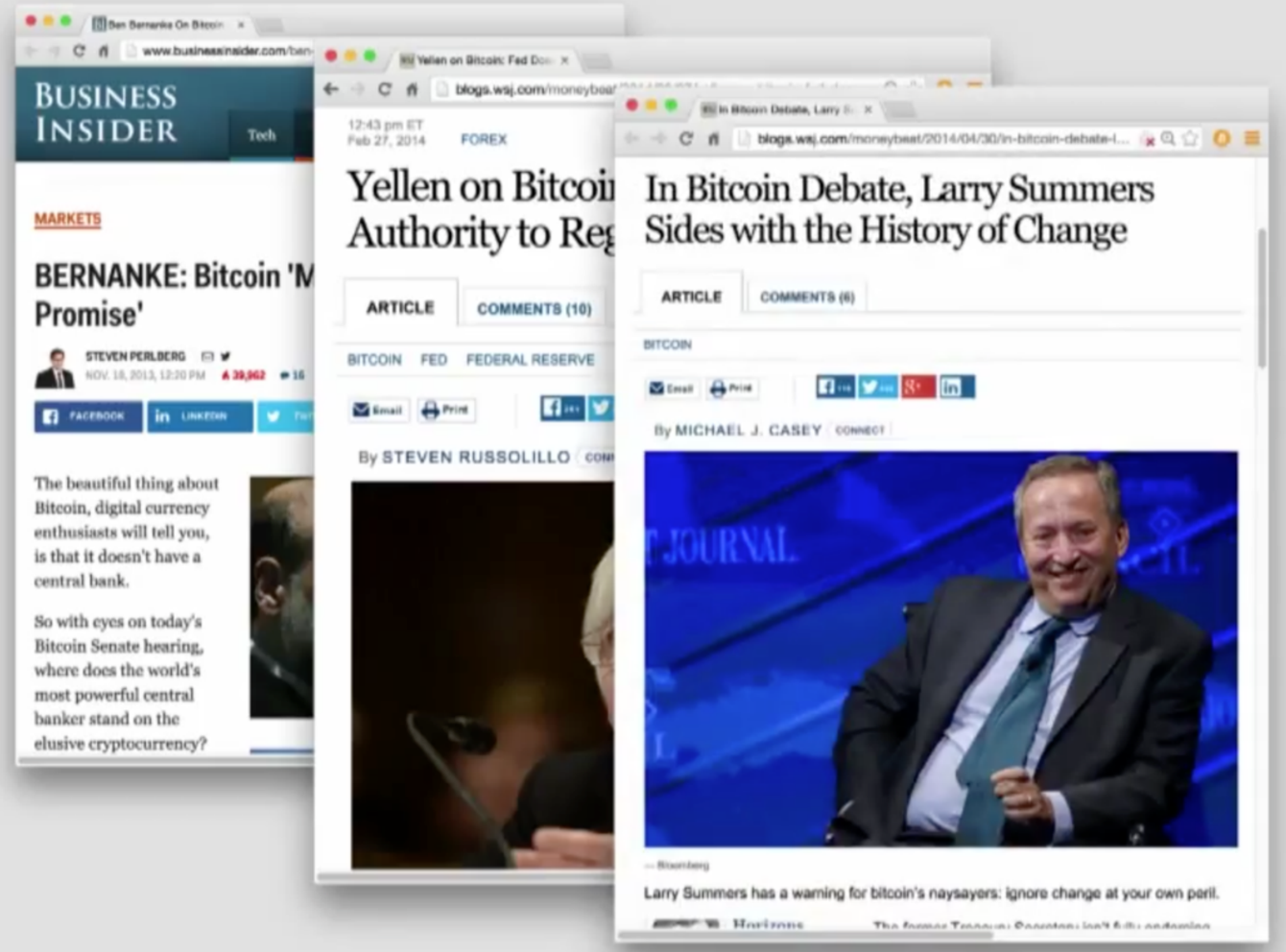
Pop Media
Newsweek cover story



VC Investing
2014: $300M
2015: $1B+?

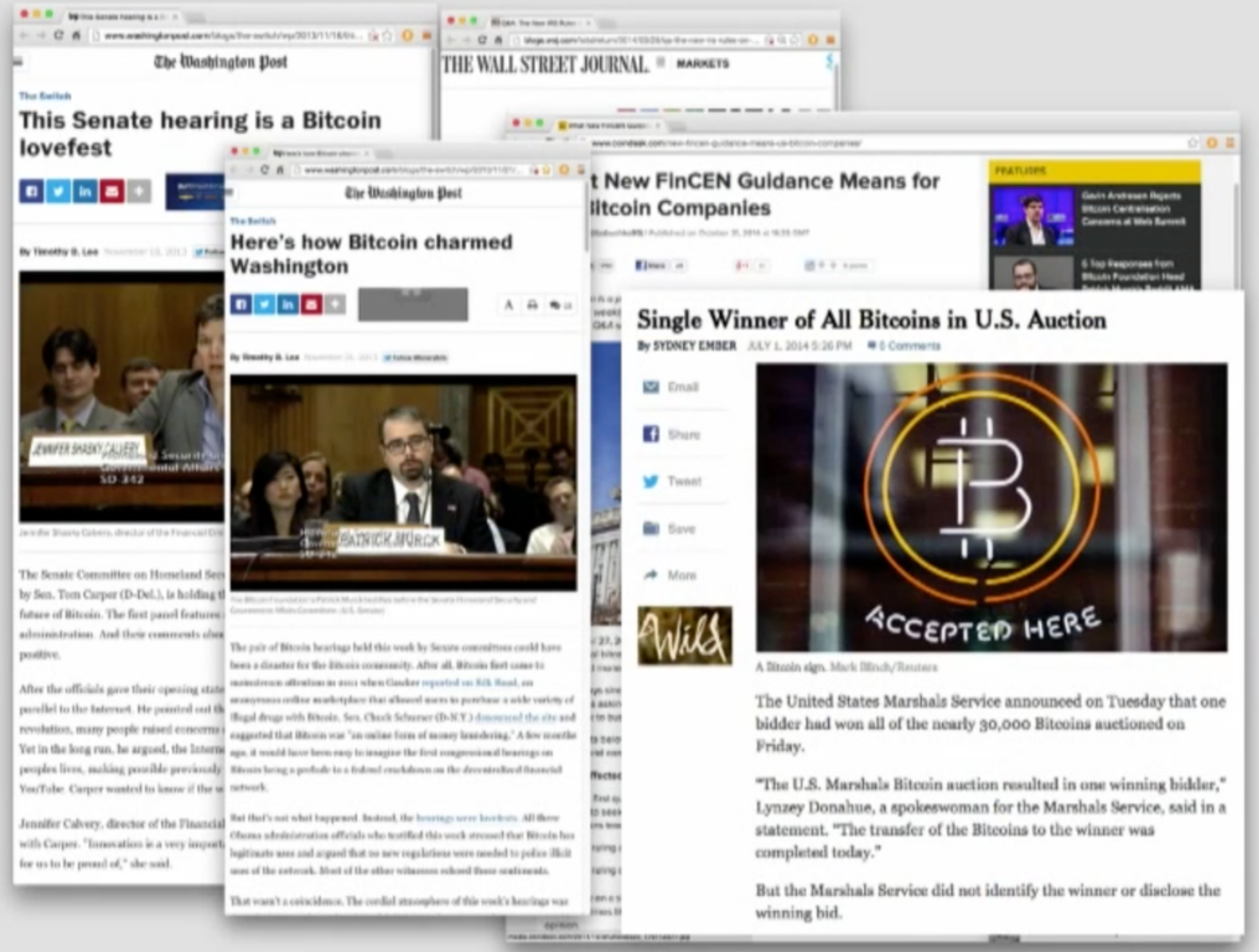
Federal Reserve

Past, present, and alternative Federal Reserve chairs on Bitcoin.



US Federal Government

After Senate hearings in late 2013, IRS ruling, FINCEN, and large FBI sale have now effectively legalized Bitcoin at federal level.



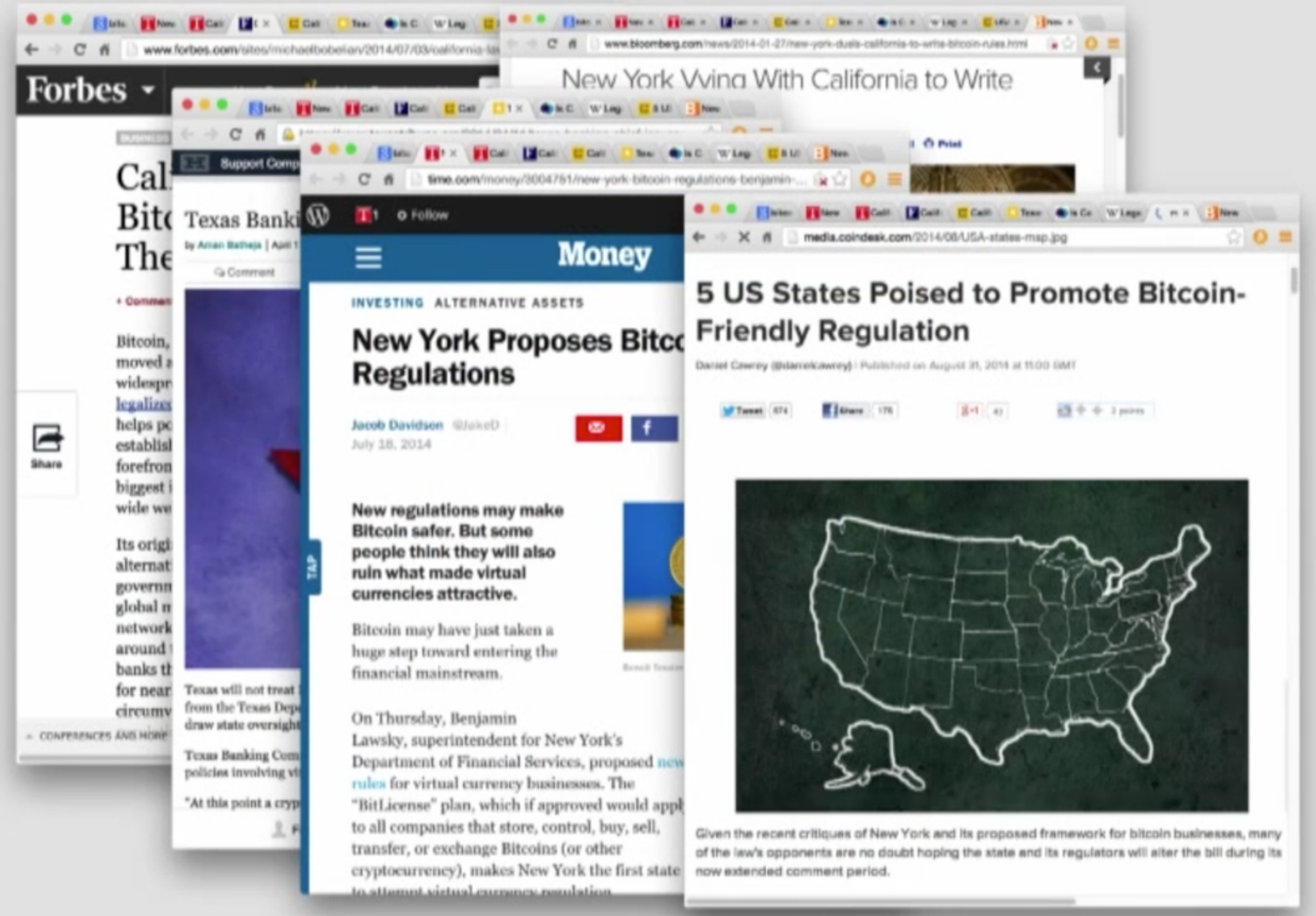
IRS

FINANCIAL CRIMES ENFORCEMENT NETWORK

DEPARTMENT OF JUSTICE FEDERAL BUREAU OF INVESTIGATION

US State Governments

New York, California, and Texas are all now legalizing or have signaled significant positive sentiment. More states are following.

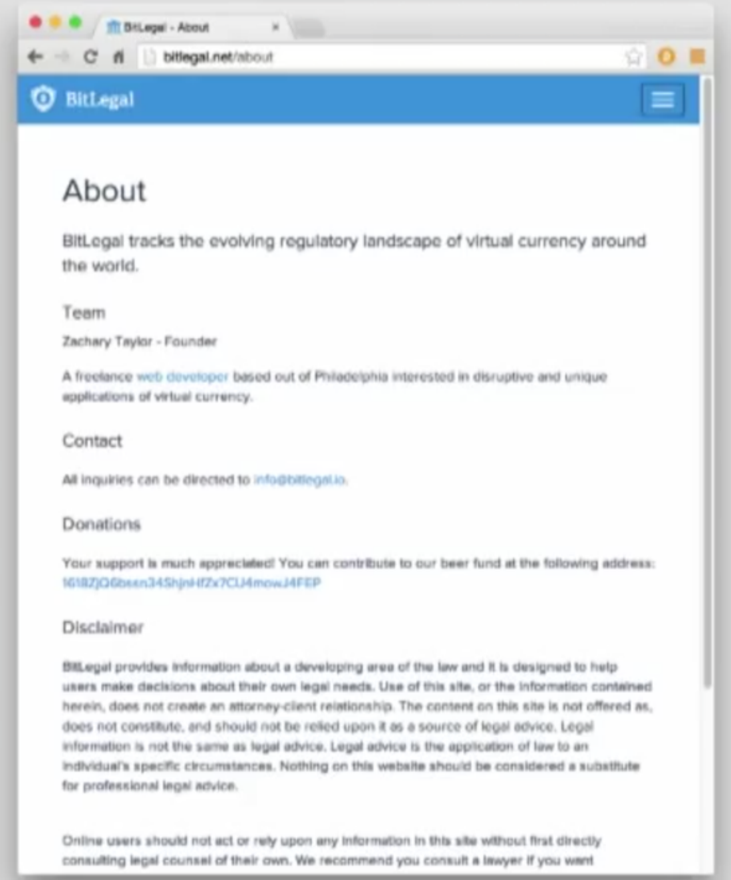


UK, Japan, Israel Governments

Extremely positive attitude from many foreign governments, even more so than the US.

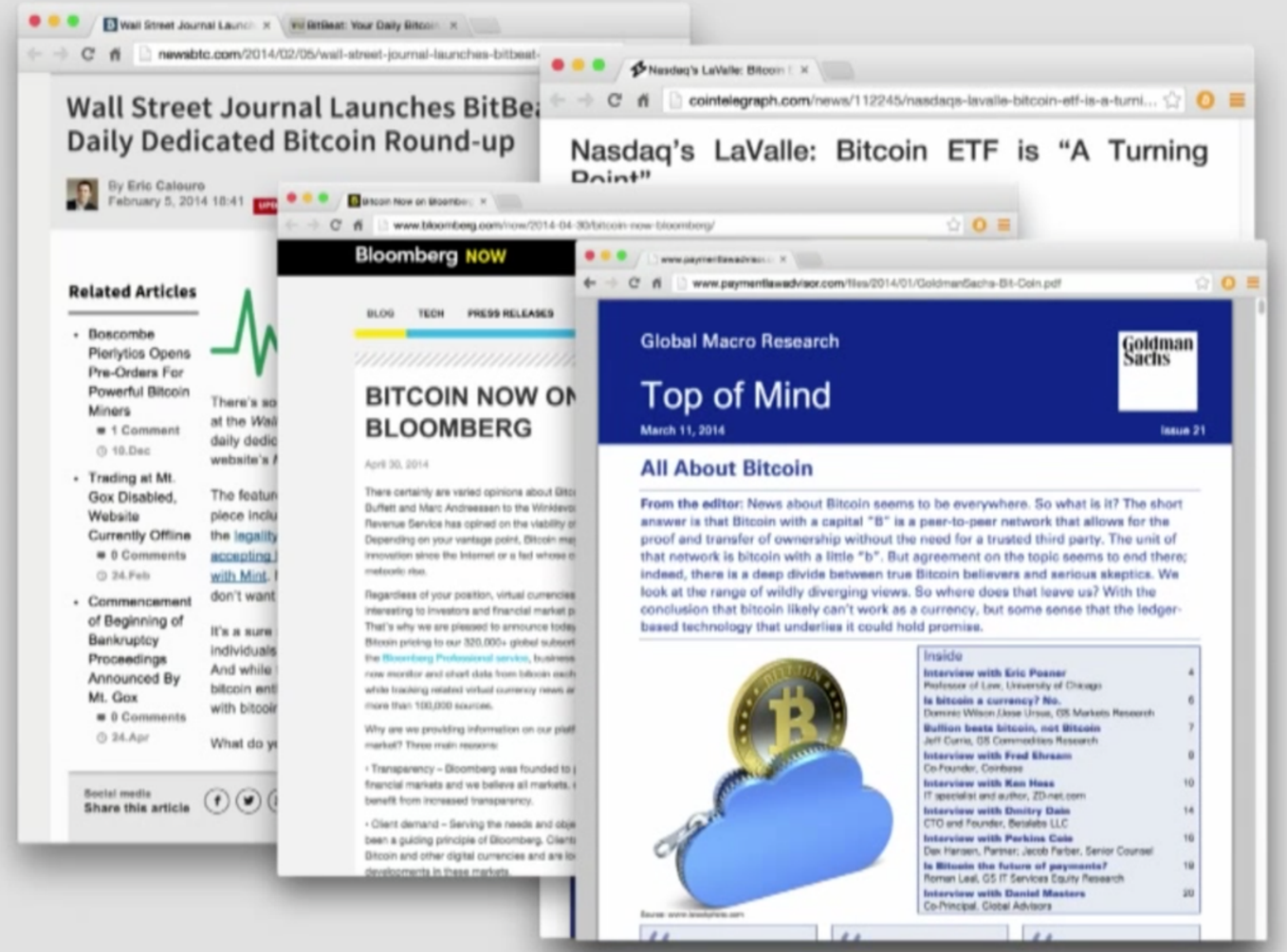
International Governments

Surprisingly few govts have restricted it worldwide; even China/Russia in practice are slowing vs banning.



Institutional Finance

WSJ, Bloomberg, NASDAQ embracing Bitcoin. GS: "All About Bitcoin"



WSJ

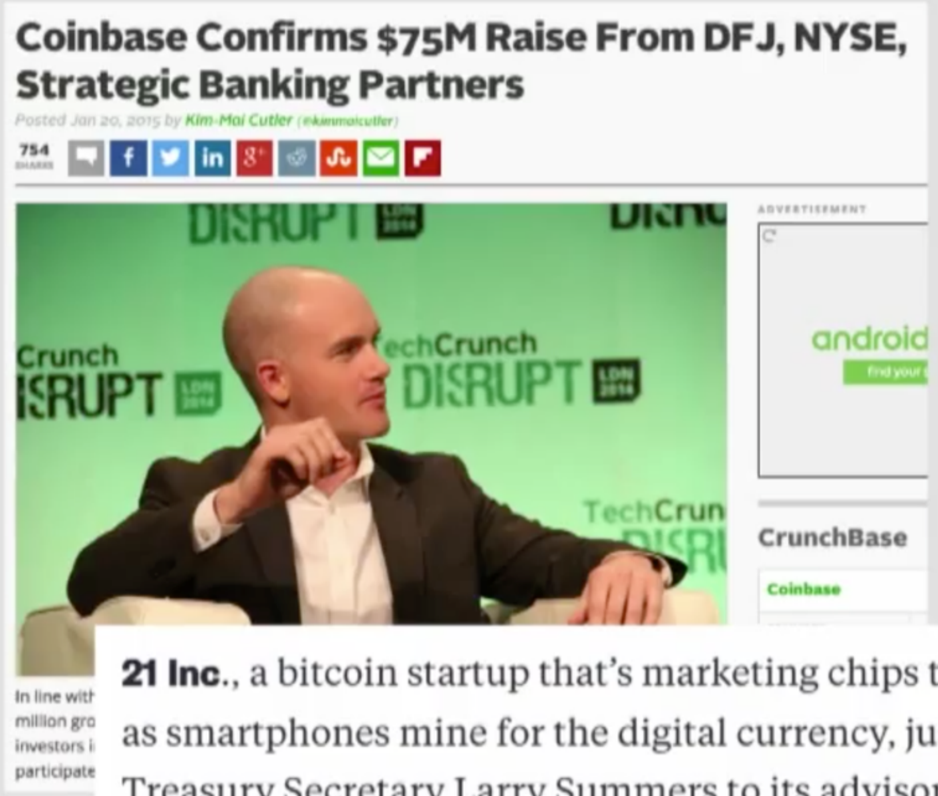
NASDAQ®

Bloomberg

Goldman Sachs

Institutional Finance and Govt

NYSE, USAA, BBVA investing in Coinbase. Summers joining 21 SAB.



21 Inc., a bitcoin startup that's marketing chips that let devices such as smartphones mine for the digital currency, just added former Treasury Secretary Larry Summers to its advisory board. (Wall Street Journal)

NYSE

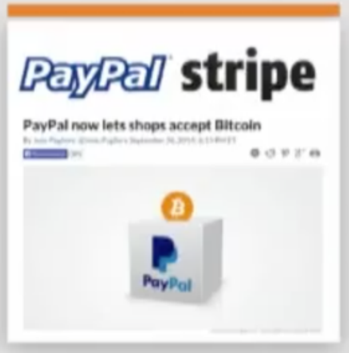
USAA®

BBVA

"What's your Bitcoin Strategy?"

Major organizations in different sectors are now executing on their Bitcoin strategy.

PAYMENTS
Paypal, Stripe using Bitcoin



MERCHANTS
Accepting Bitcoin for goods

NEWSMEDIA
Regular Bitcoin coverage

GAMING
In-game pts, Twitch Turbo

GOVERNMENTS
Very positive in many countries

VENTURE CAPITAL
Investing >$300M

INVESTMENT BANKING
Coverage & CIO attention

BITCOIN STRATEGY
What fits your org?

Bitcoin is bigger than Google

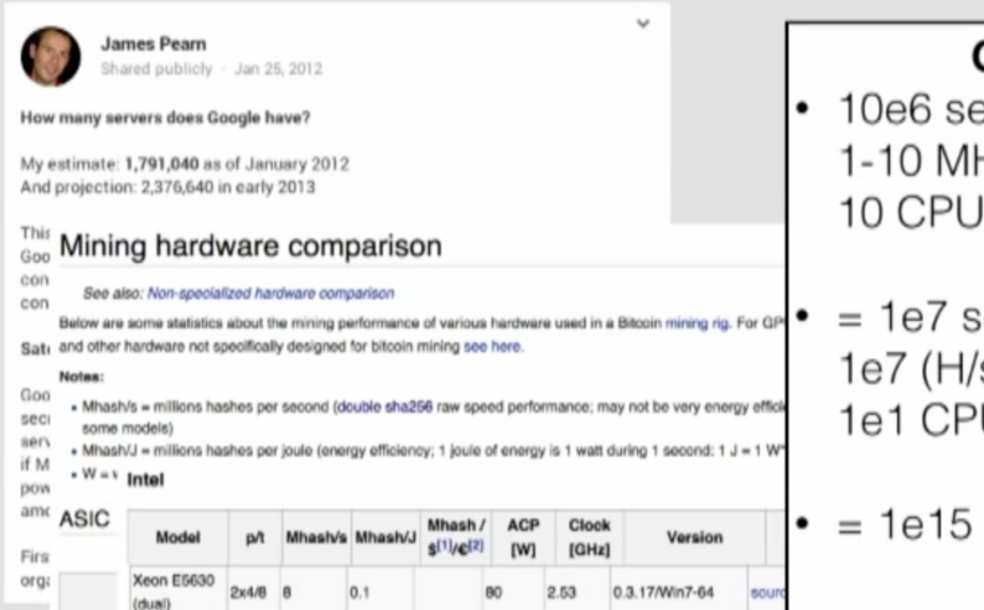
Mining consumes more power than Google in 2011.
All of Google today would represent <1% of mining.

Bitcoin mining up >100X, now S-curve

The degree of mining buildout over the last two years has not fully been appreciated in the popular press.

Google CPUs: <1% of Bitcoin hashrate

CPUs/GPUs are now 1,000-10,000X less efficient than ASICs. Thus even 10 million Google servers are less than 1% of global hashrate!



James Pearn
Shared publicly · Jan 25, 2012

How many servers does Google have?

My estimate: **1,791,040** as of January 2012
And projection: 2,376,640 in early 2013

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Mining hardware comparison

See also: Non-specialized hardware comparison

Below are some statistics about the mining performance of various hardware used in a Bitcoin mining rig. For GP and other hardware not specifically designed for bitcoin mining see here.

Notes:

- Mhash/s = millions hashes per second (double sha256 raw speed performance; may not be very energy effic some models)
- Mhash/J = millions hashes per joule (energy efficiency; 1 joule of energy is 1 watt during 1 second: 1 J = 1 W
- W = v

Intel

ASIC

Model	p/t	Mhash/s	Mhash/J	Mhash / $[1]/€[2]	ACP [W]	Clock [GHz]	Version	
Xeon E5630 (dual)	2x4/8	8	0.1		80	2.53	0.3.17/Win7-64	sourc
Xeon E6520 (dual)	2x4/8	24.7				2.53	ufasoft v0.10	windo
Xeon E7220	2/2	6.3	?		80	2.93	ufasoft v0.10	Cent
Xeon E7320 (dual)	2x2	1.5				2.8	cgminer v1.2.8	2x2.8 Ubur cores
Xeon E7450 (quad)	4x8/24	60				2.40	ufasoft v0.13	-t 24
Xeon E7520 (dual)	2x4/16	18			95	1.87	ufasoft v0.10	windows 2008 R2 64bit (-t 16)
Xeon W3680	6/12	18			130	3.33	cpuminer v1.0.2 --algo=4way	Ubuntu 11.04 64bit

Google

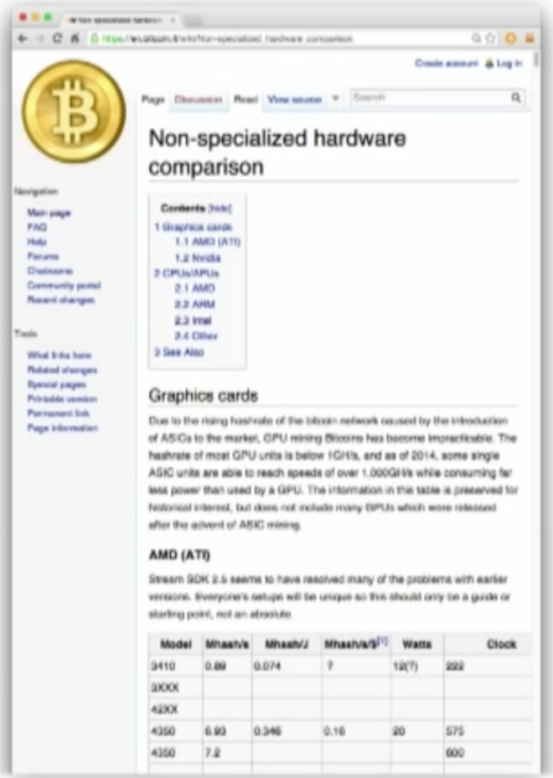
- 10e6 servers x
  1-10 MH/s per CPU x
  10 CPUs/server
- = 1e7 servers x
  1e7 (H/s) per CPU x
  1e1 CPUs per server
- = 1e15 H/s

vs

Bitcoin

- 350e15 H/s (global)

> Google



Non-specialized hardware comparison

Contents [hide]
1 Graphics cards
1.1 AMD (ATI)
1.2 Nvidia
2 CPUs/APUs
2.1 AMD
2.2 ARM
2.3 Intel
2.4 Other
3 See Also

Graphics cards

Due to the rising hashrate of the bitcoin network caused by the introduction of ASICs to the market, GPU mining Bitcoins has become impracticable. The hashrate of most GPU units is below 1GH/s, and as of 2014, some single ASIC units are able to reach speeds of over 1,000GH/s while consuming far less power than used by a GPU. The information in this table is preserved for historical interest, but does not include many GPUs which were released after the advent of ASIC mining.

AMD (ATI)

Stream SDK 2.5 seems to have resolved many of the problems with earlier versions. Everyone's setups will be unique so this should only be a guide or starting point, not an absolute

Model	Mhash/s	Mhash/J	Mhash/s/$[1]	Watts	Clock
3410	0.89	0.074	?	12(?)	222
3XXX					
42XX					
4350	6.93	0.346	0.16	20	575
4350	7.2				600

Google 2011: less power than Bitcoin

The Bitcoin network now consumes at least 300MW of power (assuming 1 MW/PH/s) - more than all of Google did in 2011.

Google never says how many servers are running in its data centers. The new estimate is based on information the company shared with Stanford professor Jonathan Koomey, who has just released an updated report on data center energy usage.

Google's David Jacobowitz, a program manager on the Green Energy team, told Koomey that the electricity used by the company's data centers was less than 1% of 198.8 billion kWh – the estimated total global data center energy usage for 2010. That means that Google may be running its entire global data center network in an energy footprint of roughly 220 megawatts of power.

"Google's data center electricity use is about 0.01% of total worldwide electricity use and less than 1 percent of global data center electricity use in 2010," Koomey writes, while cautioning that his numbers represent educated guesses extrapolated from the company's information. "This result is in part a function of the higher infrastructure efficiency of Google's facilities compared to in-house data centers, which is consistent with efficiencies of other cloud computing installations, but it also reflects lower electricity use per server for Google's highly optimized servers."

Global hashrate	300 PH/s
Mining ASIC power usage	1 W / GH/s = 1 MW / PH/s
Total mining power usage	>300MW
Google 2011 (est.)	220MW

Bitcoin is open source

A programmable and customizable OS for money

Bitcoin is to Paypal as Linux is to Windows

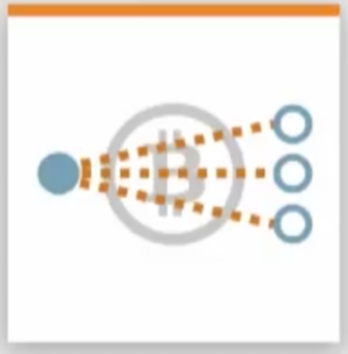
It is open-source, decentralized, programmable, and extensible.

EVERY ENTITY

Banking for anything

EVERY DEVICE

Connected? Send/receive.

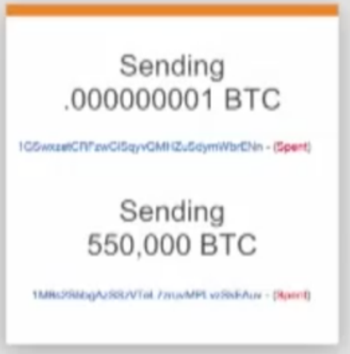


EVERY COUNTRY

Available worldwide

EVERY AMOUNT

From micro to macro

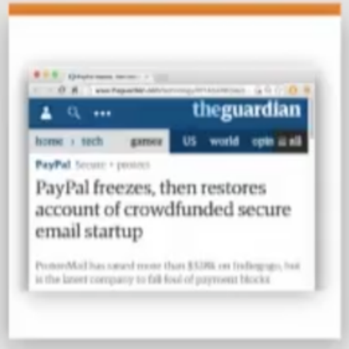


EXTENSIBLE

Modify code, add features

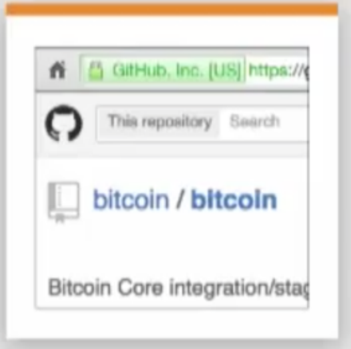
UNFREEZABLE

Full personal control



FREE & OPEN SOURCE

Forkable on Github



MUCH MORE

Multisig, Blockchain, Contracts!

Examples of Forking & Modification

Bitcoin is an open-source commons that people can fork & rapidly improve without paying anything.

Bitcoin has a network effect

Four-sides: Miners, Devs, Merchants, Users

Bitcoin has a four-sided network effect

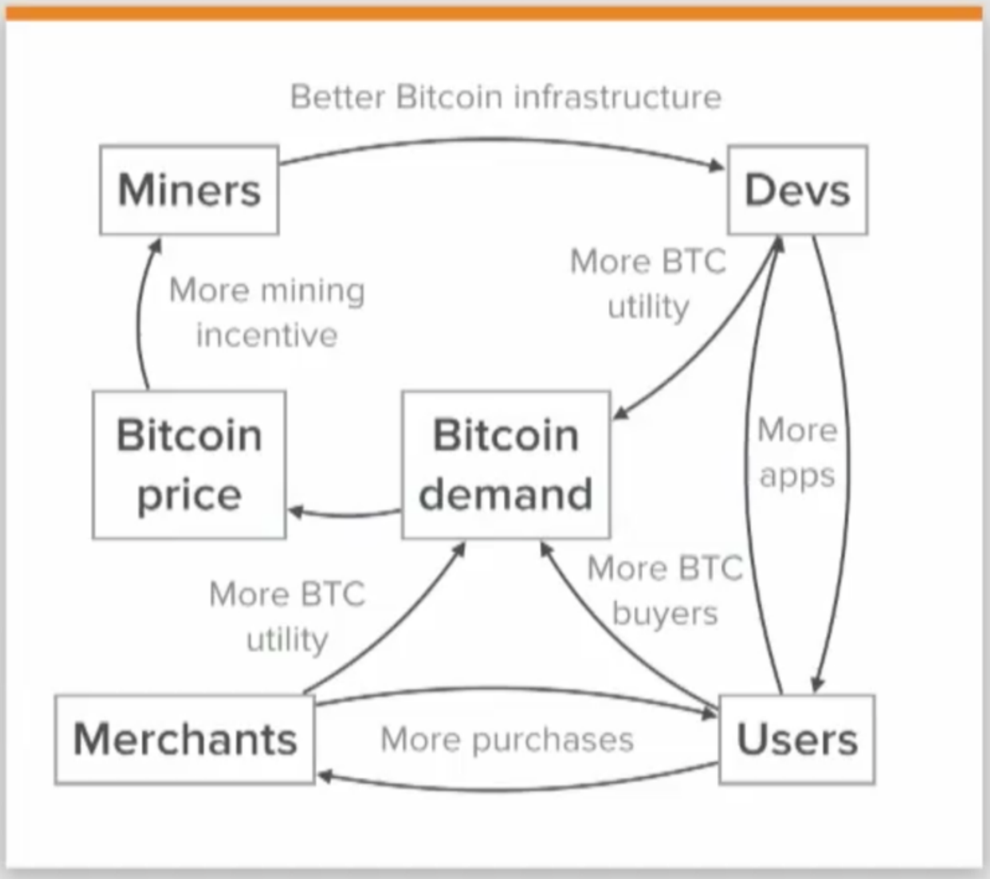
Four groups: miners, developers, users, and merchants.

Miners
Verify transactions, receive BTC.

Devs
Write Bitcoin apps.

Merchants
Accept Bitcoin for goods.

Users
Use Bitcoin for goods & apps.



The 4-Sided Network Effect
Every node increases value for other nodes.

Users: Adoption Metrics

From a year-on-year perspective, even given price volatility, adoption is actually way up across the board.

Key Bitcoin Adoption Metrics

	Quarterly			Last 12 Months	
	Mar-15	Dec-14	Q/Q Δ	Mar-14	Δ
Commerce					
Wallets	8,457,207	7,396,772	14%	4,448,142	2x
Merchants	88,000	82,000	7%	52,704	2x
Merchants' annual revenue ($bn)	180	180	0%	2	78x
ATMs	374	342	9%	47	8x
Unique bitcoin addresses	203,189	157,377	29%	137,342	1x
Industry					
All-time VC investment ($m)	$676	$447	51%	$164	4x
Number of VC-backed startups	103	89	16%	47	2x
Media					
Mainstream media mentions	458	580	-10%	2,594	-82%
Technology					
Network hash rate (billion/second)	346,028,956	313,142,289	11%	41,813,922	8x
Github no. of updated repositories	27,857	23,249	20%	9,915	3x
Valuation					
Bitcoin market capitalization ($bn)	$3.4	$4.3	-21%	$5.3	-36%

Data sources and notes: CoinDesk, Blockchain.info, BitcoinPulse, Github, Coin ATM Radar. Figures are cumulative from start of records, except unique bitcoin addresses and media mentions, which are figures for the quarter ending that month.

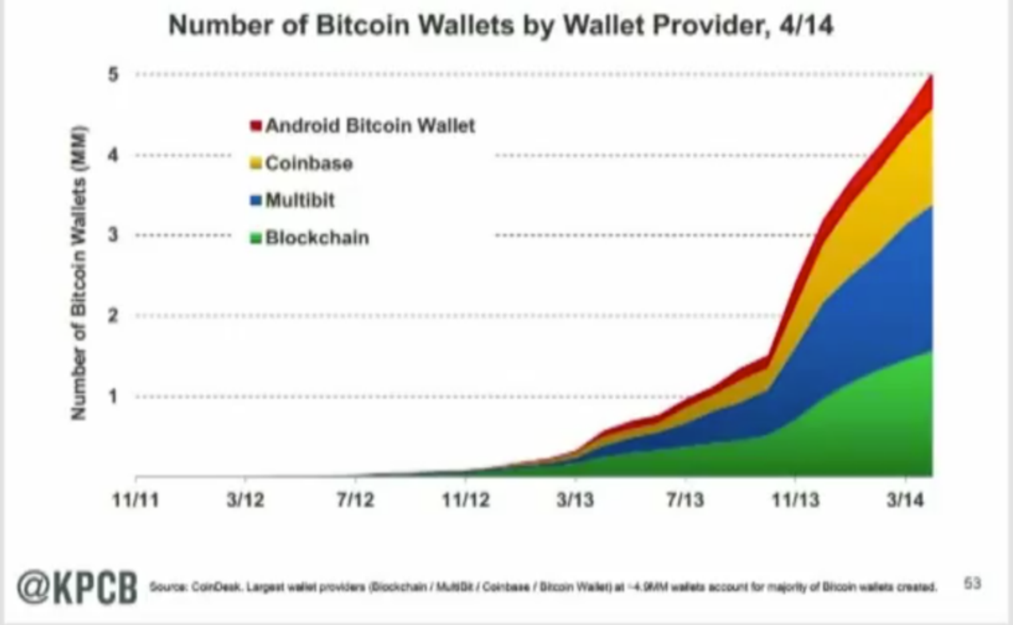
Most figures up 3-10X. Hashrate up 200X!

2014: year of institutional acceptance

Users: More than 8M Wallets

Were 5M public wallets as of May 2014.
Were 8M as of Nov 2014 (Coinbase + Blockchain + ...)

Fact that ~5MM Bitcoin Wallets (+8x Y/Y) Exist Proves Extraordinary Interest in Cryptocurrencies



@KPCB Source: CoinDesk. Largest wallet providers (Blockchain / MultiBit / Coinbase / Bitcoin Wallet) at ~4.9MM wallets account for majority of Bitcoin wallets created. 53

8M user wallets means ~100-1000X growth left

Potential to ultimately to get to billions

Users: Record Transaction Volumes

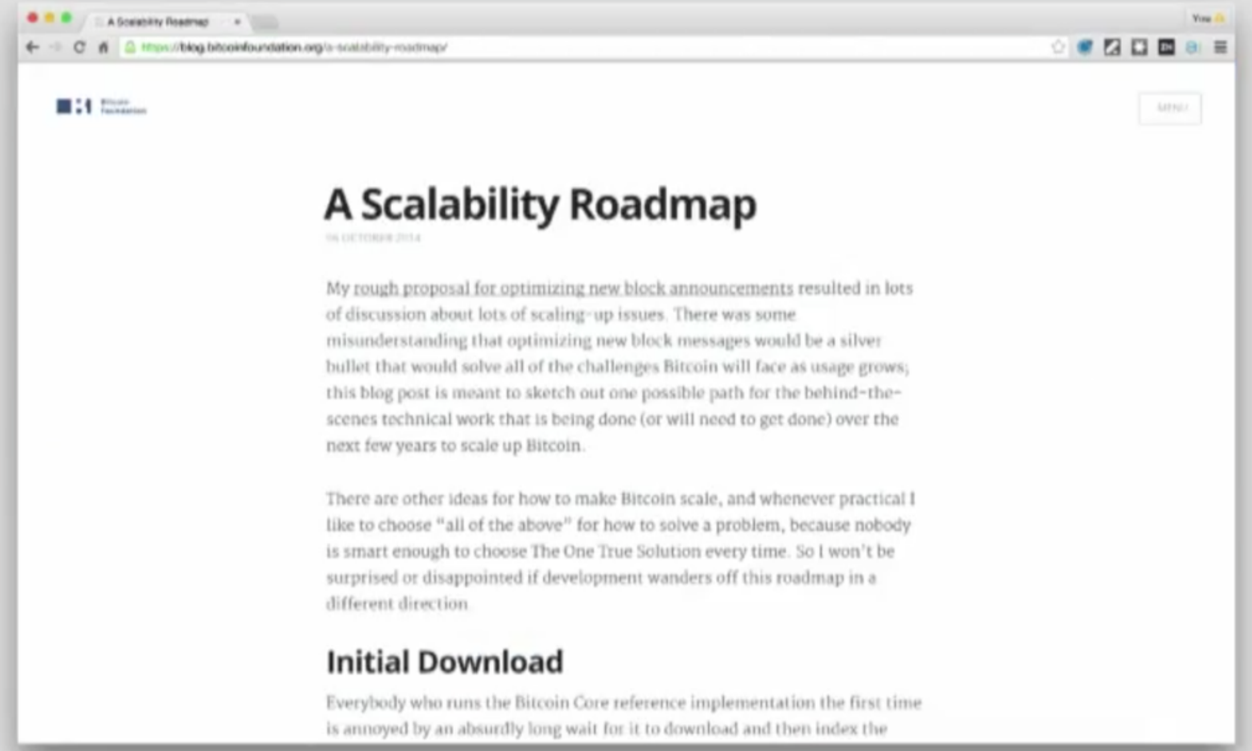
All-time record transaction volumes are now being posted.

The long-term transaction volume trend is clear

Core developer roadmap scales tx volume to many billions per day

Users: Record Transaction Volumes

All-time record transaction volumes are now being posted.



A Scalability Roadmap

My rough proposal for optimizing new block announcements resulted in lots of discussion about lots of scaling-up issues. There was some misunderstanding that optimizing new block messages would be a silver bullet that would solve all of the challenges Bitcoin will face as usage grows; this blog post is meant to sketch out one possible path for the behind-the-scenes technical work that is being done (or will need to get done) over the next few years to scale up Bitcoin.

There are other ideas for how to make Bitcoin scale, and whenever practical I like to choose "all of the above" for how to solve a problem, because nobody is smart enough to choose The One True Solution every time. So I won't be surprised or disappointed if development wanders off this roadmap in a different direction.

Initial Download

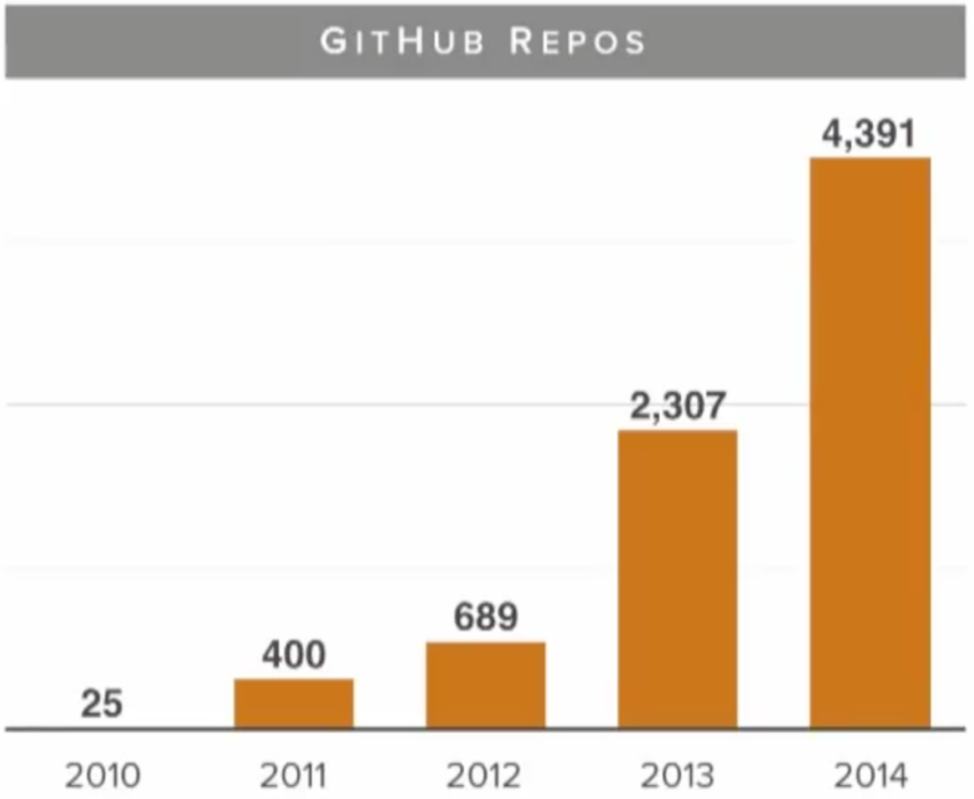
Everybody who runs the Bitcoin Core reference implementation the first time is annoyed by an absurdly long wait for it to download and then index the

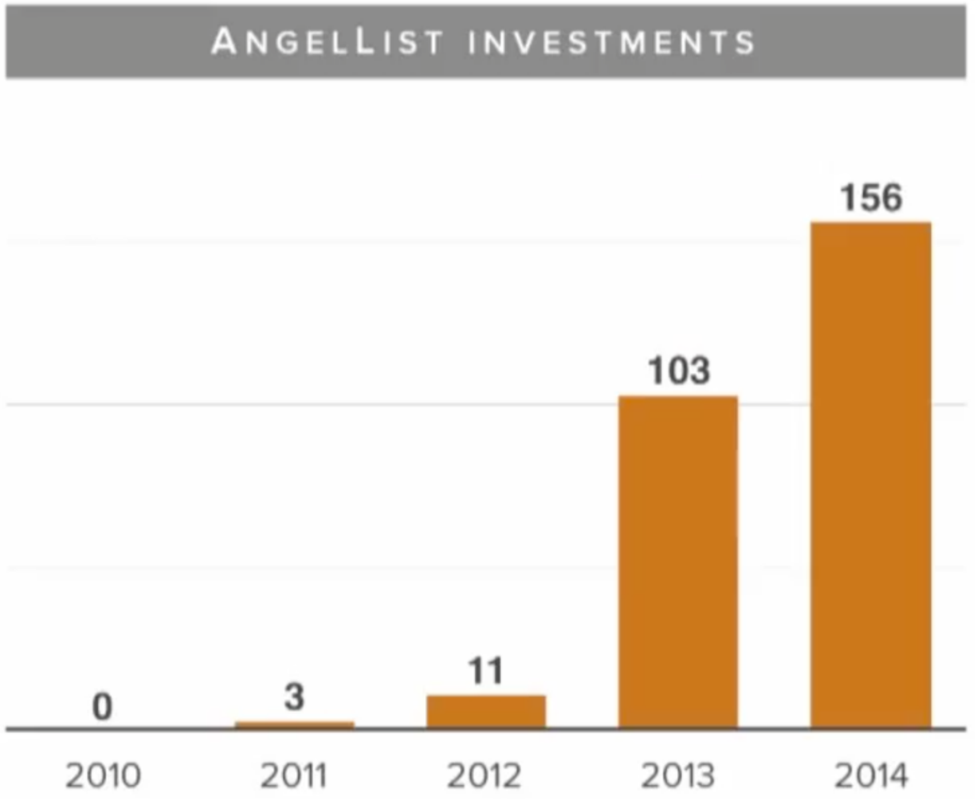
The long-term transaction volume trend is clear

Core developer roadmap scales tx volume to many billions per day

Developers: Huge Open Source & Startup Traction

The community of Bitcoin developers & entrepreneurs is rapidly increasing.





Price: The Short-Term View

Why is price down now? Miners have to sell in bulk to pay electricity bills, artificially depressing price with large sell orders.

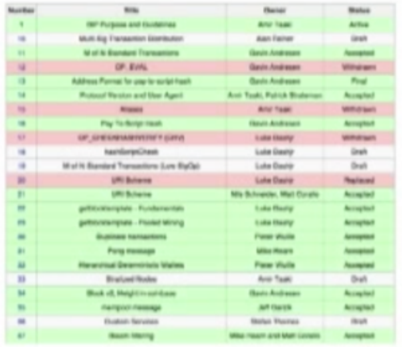
The a16z Bitcoin FAQ

Let's talk through some FAQs - and the most important q

Why is Bitcoin likely to be the winner?

Let's talk through some of the most frequently raised questions.

Bitcoin Improvement Proposals



Rapid pace of open-source dev

Bitcoin Core integration/staging tree https://bitcoin.org/en/download

7,253 commits 14 branches 119 releases

Sidechains as a staging area

Bitcoin 2.0: Unleash The Sidechains

Modifiable?

Yes. Like IETF, BIPs/patches regularly incorporated.

Important: Bitcoin protocol itself has not been hacked.

I Tried Hacking Bitcoin And I Failed

DAN KAMINSKY, DANKAMINSKY.COM

APR. 12, 2013, 10:46 AM 70,407 12

Seriously though, as an engineer and as a hacker (and I promise you, these are two very different things), BitCoin surprised me. Here was a system with the following properties:

- Created an enormous global cloud of always-on, listening machines
- Spoke its own fiddly little custom network protocol
- Written in C++, which for all of its strengths is not usually the safest thing in the world to be reading random Internet garbage with
- Directly implemented the delivery of a Pot Of Gold At The End Of The Rainbow for any hacker who could break it

By all extant metrics in security system review, this system should have failed instantaneously, at every possible layer.

And, to be fair, it has failed at other layers – BitCoin thefts have occurred, in the meta-code that surrounds the core technology itself.

But the core technology actually works, and has continued to work, to a degree not everyone predicted. Time to enjoy being wrong. What the heck is going on here?

Analogy: a bank robbery is not a counterfeit dollar. Similarly, Mt. Gox hack did not mean a double spend of Bitcoins.

Secure?

Appears so. Protocol itself has not been hacked.

Like early Internet, demand is pushing scalability innovation.

A Scalability Roadmap

BY GAVIN ANDRESEN, CHIEF SCIENTIST, OCTOBER 6, 2014

My rough proposal for optimizing new block announcements resulted in lots of discussion about lots of scaling-up issues. There was some misunderstanding that optimizing new block messages would be a silver bullet that would solve all of the challenges Bitcoin will face as usage grows; this blog post is meant to sketch out one possible path for the behind-the-scenes technical work that is being done (or will need to get done) over the next few years to scale up Bitcoin.

Scaling will be nontrivial, but Internet pushed communications up to 10000/day. Bitcoin will do same for transactions.

Scalable?

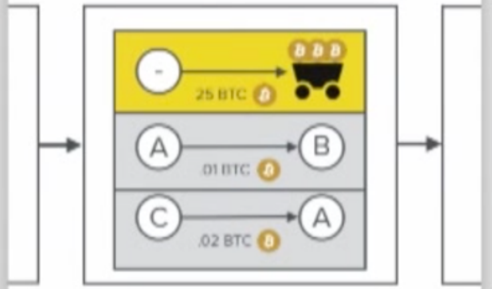
Yes. Core devs have published billion tx roadmap.

There will be blockchain-based apps besides Bitcoin itself...

namecoin

Filecoin

...but blockchain tokens must have value (like Bitcoin) to incentivize mining process.

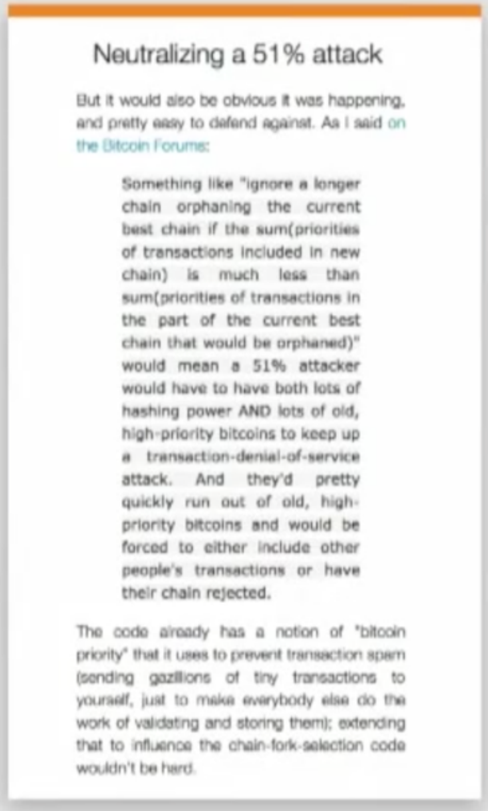


Blockchain, not Bitcoin?

Not really separable; token is incentive for distributed mining

Why is Bitcoin likely to be the winner?

Let's talk through some of the most frequently raised questions.

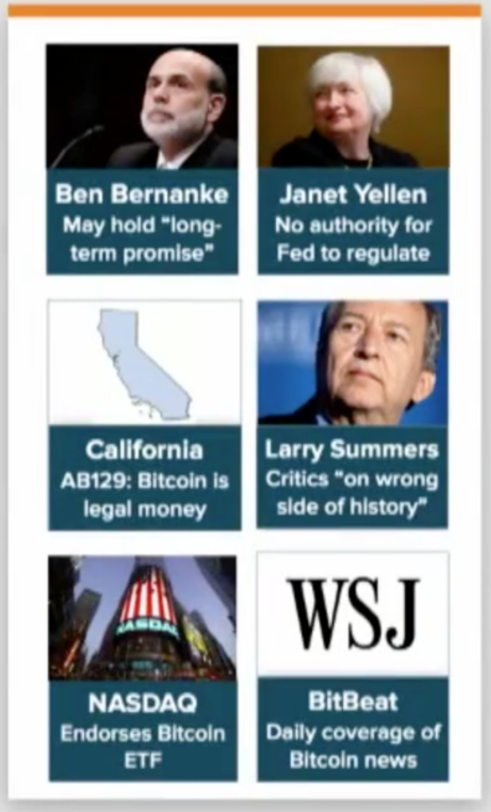


51% attack?

Oversold. Technical countermeasures available.

Fundamental value?

Actually, yes. 1 Satoshi: write to a global notary public.



Legal issues?

As of today, major govt & financial acceptance.

Alternatives?

Prob not. BIPs + Sidechains: Bitcoin adaptable like HTTP

And perhaps the most frequent question...

What about the Bitcoin price?

Price: The Long-Term View

Understanding price begins with understanding market depth: the empirical balance of buy and sell orders.

- Miner sell pressure: 25 BTC/block x 144 blocks/day x $250 = $900k/day
- A stable price means buy and sell identically balanced
- Price migration up/ down signals imbalance

For price to increase, must have more buy than sell orders

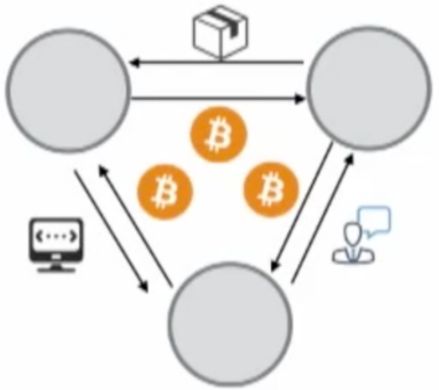
Why would that happen besides simple speculation?

Price: The Long-Term View

In the long term, maintaining and increasing the Bitcoin price further will mean the multiyear task of building the Bitcoin economy.

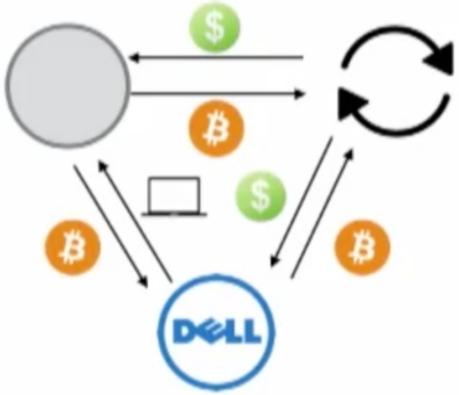
Good:

- buy BTC above market price
- trade BTC for valuable goods and services



Bad:

- sell BTC
- receive BTC and sell to pay bills



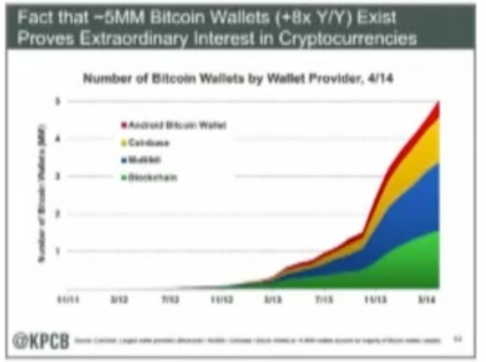
To increase the price we need closed loops.

To have more buy than sell orders: build, not just speculate

There must be goods & services purchase-able only with Bitcoin

Estonia: 1.3M people with own currency (till 2011)

A modern economy on the Kroon



Bitcoin: 5M wallets for this digital currency

Q: Can we build a cloud economy?

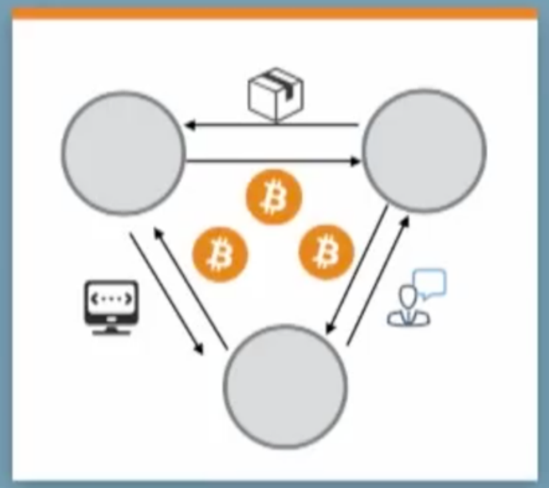
The answer to the most frequent question...

What about the Bitcoin price?

...is the most important question.

Can we build a cloud economy?

Can we build the closed loops?
Can we build a cloud economy?



Perhaps the most important q in Bitcoin.

Recap

Let's summarize.

The Andreessen Horowitz Thesis on Bitcoin

Five key facts about Bitcoin that inform our thinking, and answers to some FAQs.

BITCOIN IS A PROTOCOL

Payments are now packets

BITCOIN IS HERE TO STAY

Extraordinary institutional/sovereign support

BITCOIN IS BIGGER THAN GOOGLE

Mining now world's largest supercomputer

BITCOIN HAS A NETWORK EFFECT

Four sides: Miners, Devs, Merchants, Users

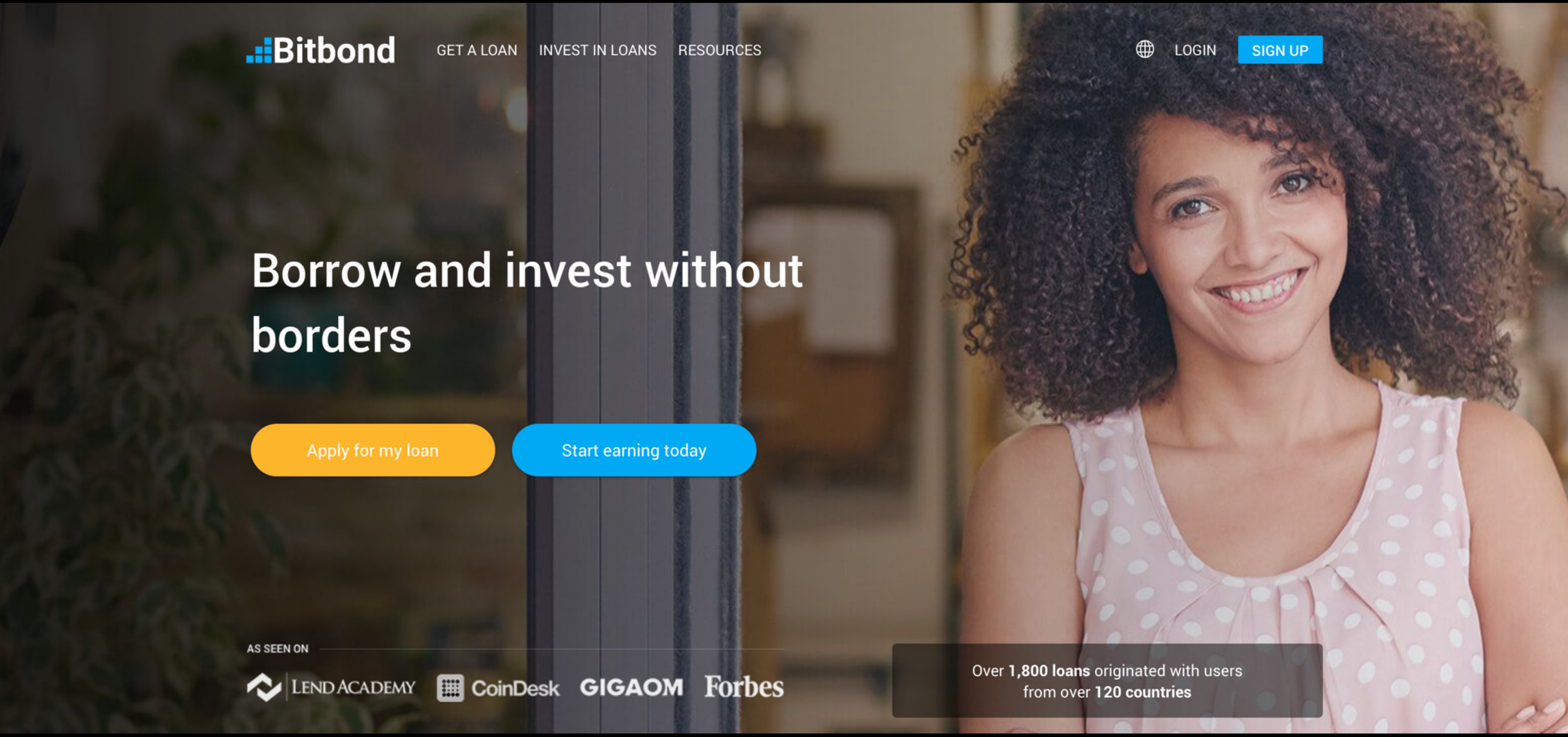
BITCOIN IS OPEN SOURCE

Extensible, programmable, rapidly improving

THE A16Z BITCOIN FAQ

And the most important q in Bitcoin.

Mobile app ideas


Bitbond
GET A LOAN
INVEST IN LOANS
RESOURCES
LOGIN
SIGN UP
Borrow and invest without borders
Apply for my loan
Start earning today
AS SEEN ON
LEND ACADEMY
CoinDesk
GIGAOM
Forbes
Over 1,800 loans originated with users from over 120 countries

Currency

BTC | ETH | ETC | XMR | ZEC | PASC | DASH | LTC

Calculated for
1 BTC = $ 2778.93

Hashing Power

13 TH/s

Power consumption (w)

1350

Cost per KW/h ($)

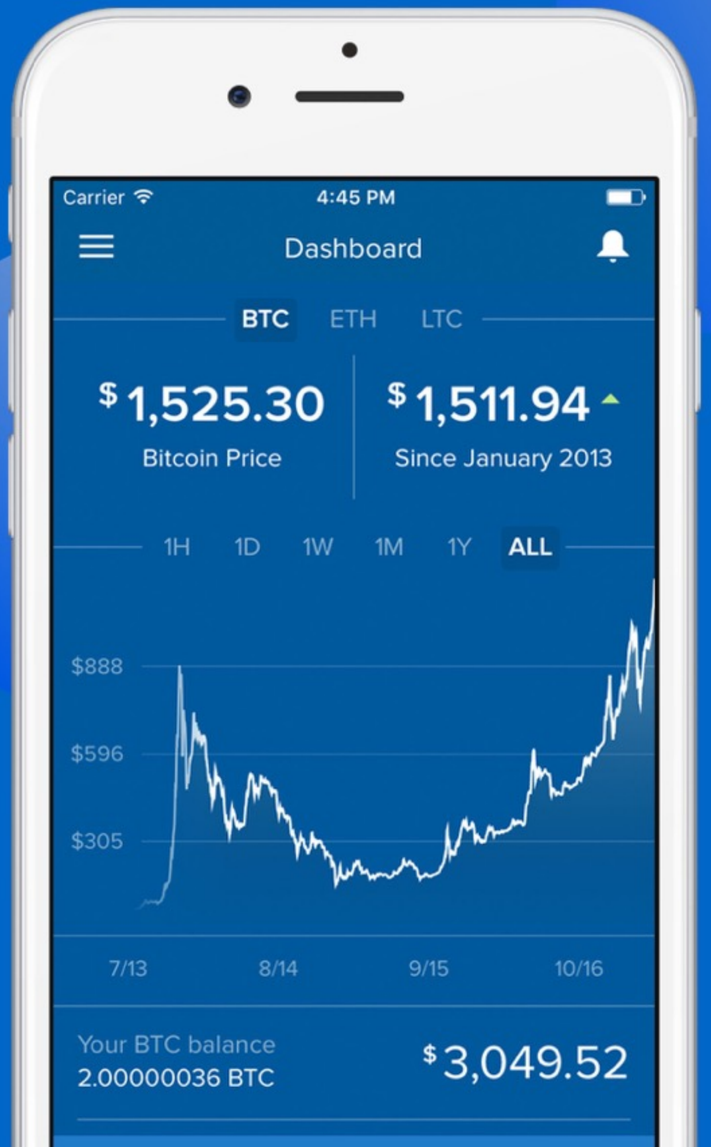
0.06

PROFIT RATIO PER DAY
480%

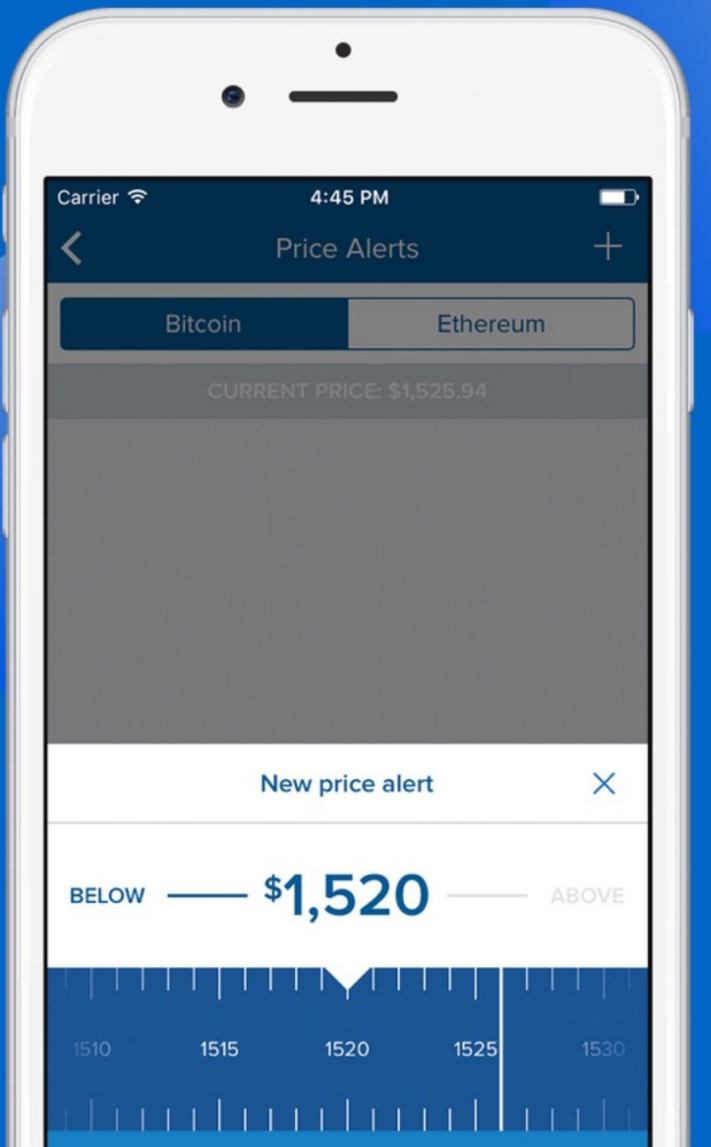
PROFIT PER MONTH
$ 280.41

Day	Profit per day $ 9.35	Mined/day Ƀ 0.004063	Power cost/Day $ 1.94
Week	Profit per week $ 65.43	Mined/week Ƀ 0.02844	Power cost/Week $ 13.61
Month	Profit per month $ 280.41	Mined/month Ƀ 0.1219	Power cost/Month $ 58.32
Year	Profit per year $ 3,411.70	Mined/year Ƀ 1.48	Power cost/Year $ 709.56

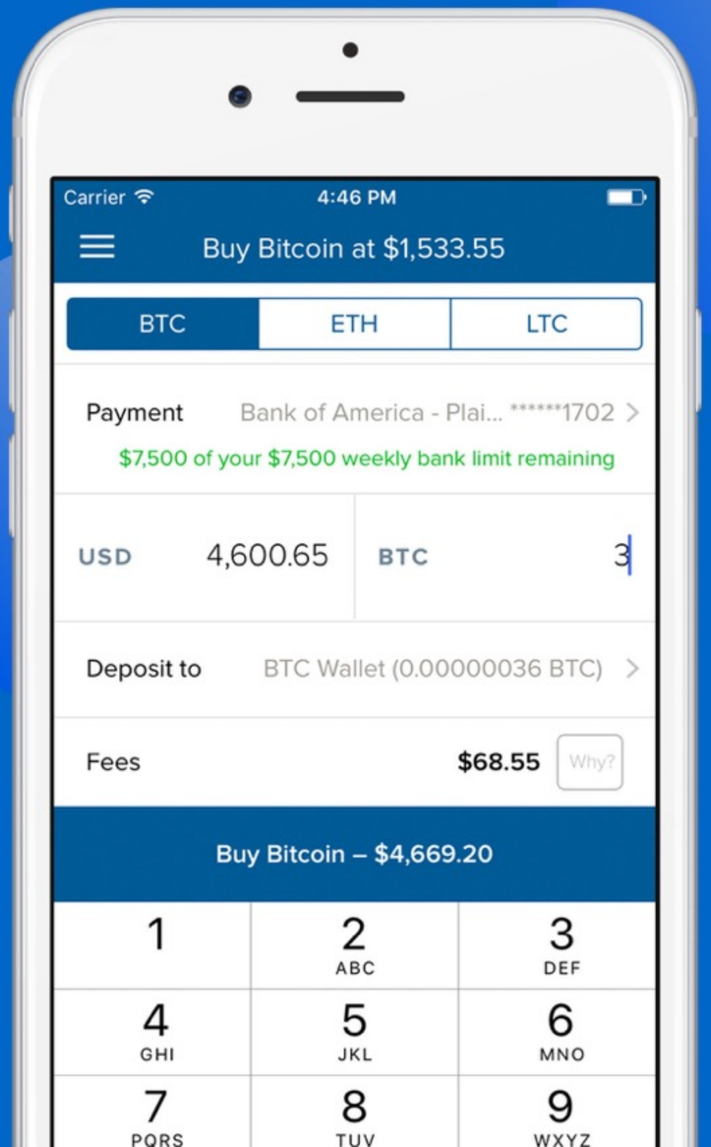
Price charts



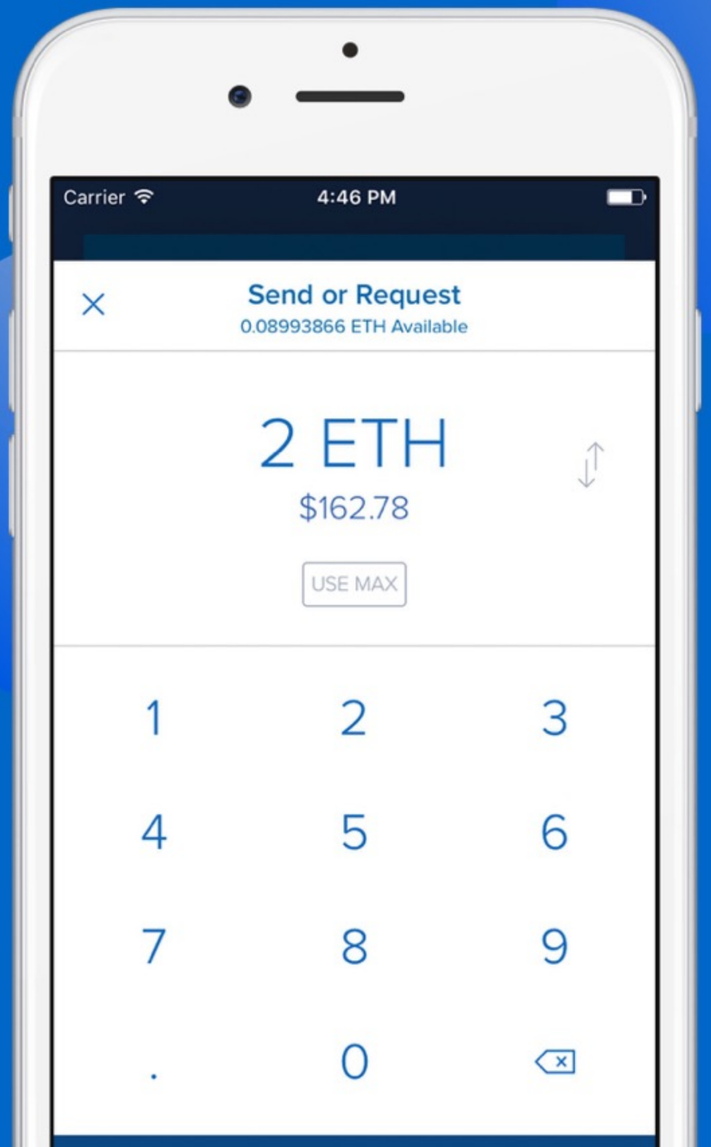
Create price alerts



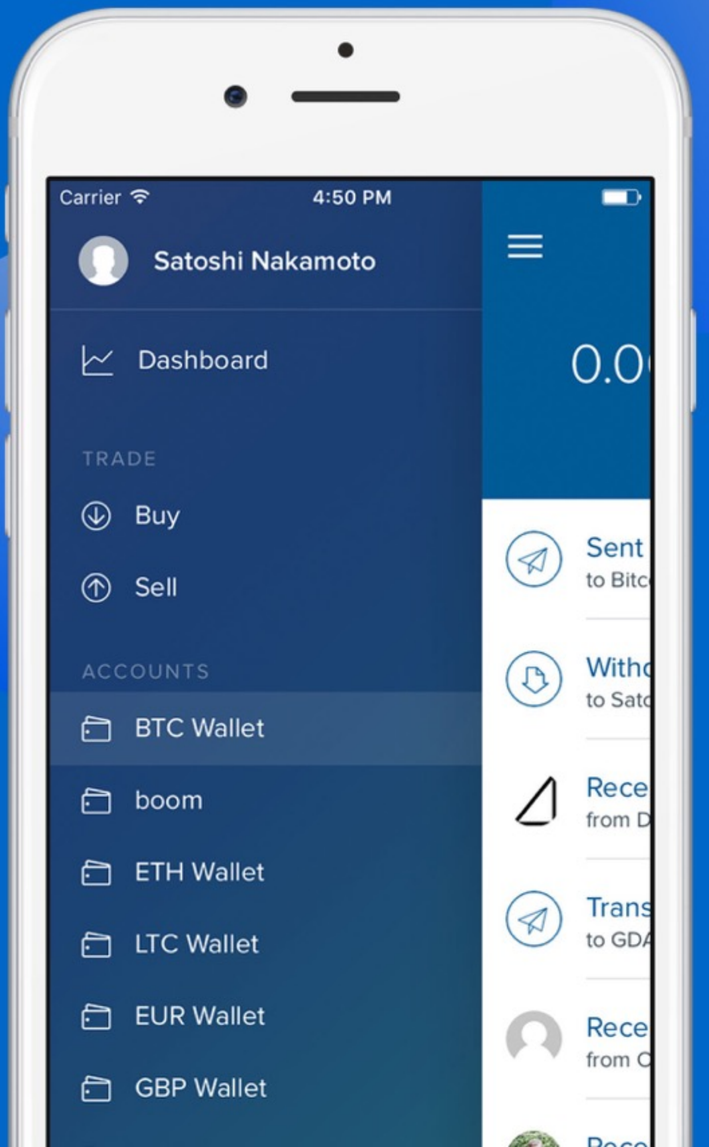
Buy and sell digital currency



Send or Request



Access your accounts



[INSIDE BITCOIN]

Inside Bitcoin

Tracking trends, news, and analysis around Bitcoin and cryptocurrencies

Your email SUBSCRIBE

More at https://cryptominded.com

Business card scanner using Core ML

Blur parts of the image which you don’t want anyone to see

Minimalist app to track daily water intake. See: WaterMinder

One random app idea using Product Hunt API

One new book recommendation using Kindle API

Safe mobile browser for kids

Книга жалоб для сервисов Kazakhtelecom, Altel, Tele2.

Top 100 charts: top 100 cryptocurrencies, top 100 private companies by valuation, top 100 richest athletes, etc.

ARKit app where you collect characters of the upcoming movie

Teach Kazakh through emojis: 🍑

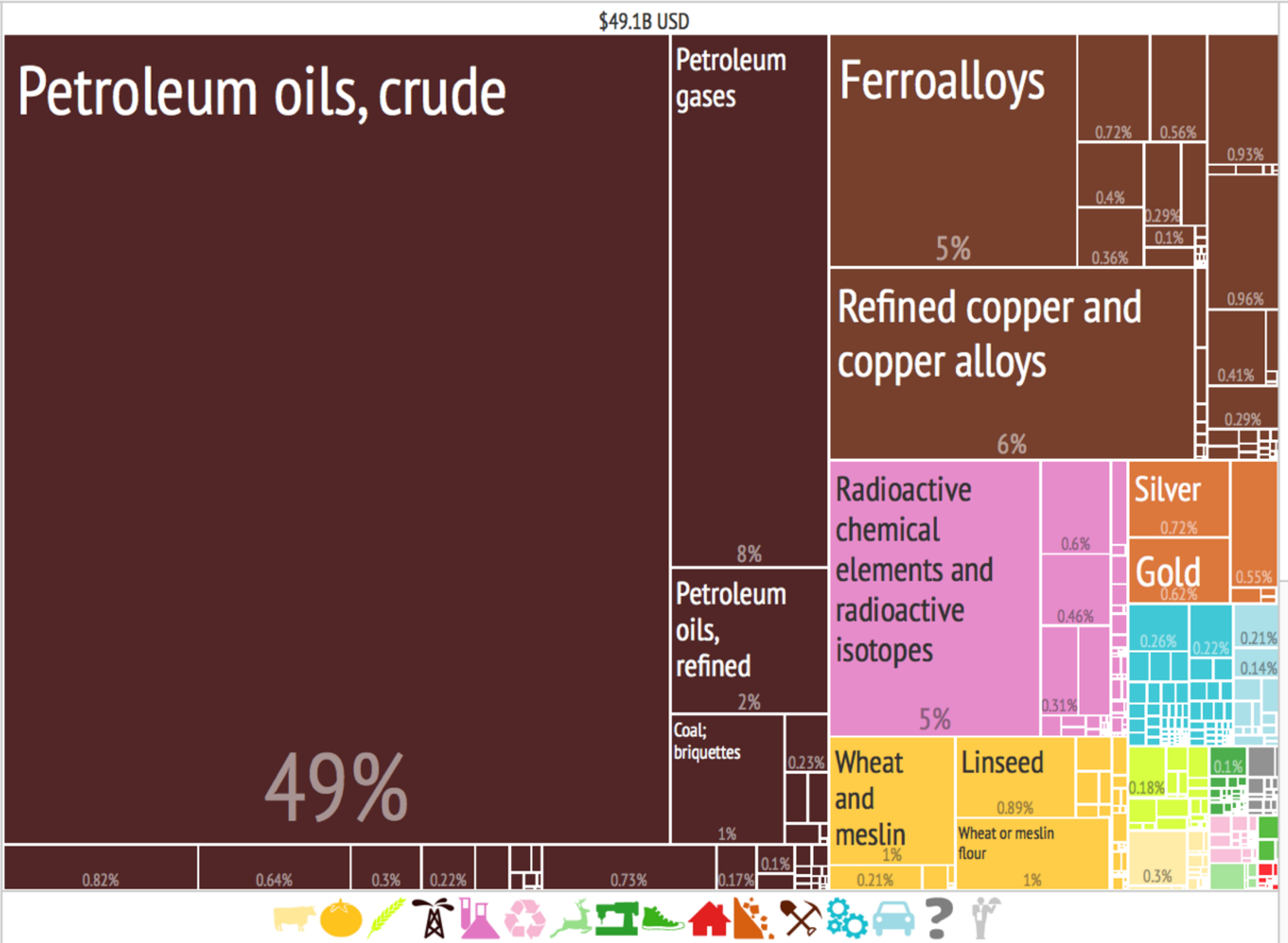
Presentation discovery app using slideshare.net API

Online order tracker using Kazpost API

Most favorited/trending libraries using Github API

The Atlas of Economic Complexity

What did Kazakhstan export in 2015?



Complete multiple tasks with one app

Switch between channels to tune the description of what's in front of the camera.

Short Text

Speaks text as soon as it appears in front of the camera

Documents

Provides audio guidance to capture a printed page, and recognizes the text, along with its original formatting

Products

Gives audio beeps to help locate barcodes and then scans them to identify products

Person

Recognizes friends and describes people around you, including their emotions

Scene

An experimental feature to describe the scene around you

Currency

Identify currency bills when paying with cash. (Coming soon)

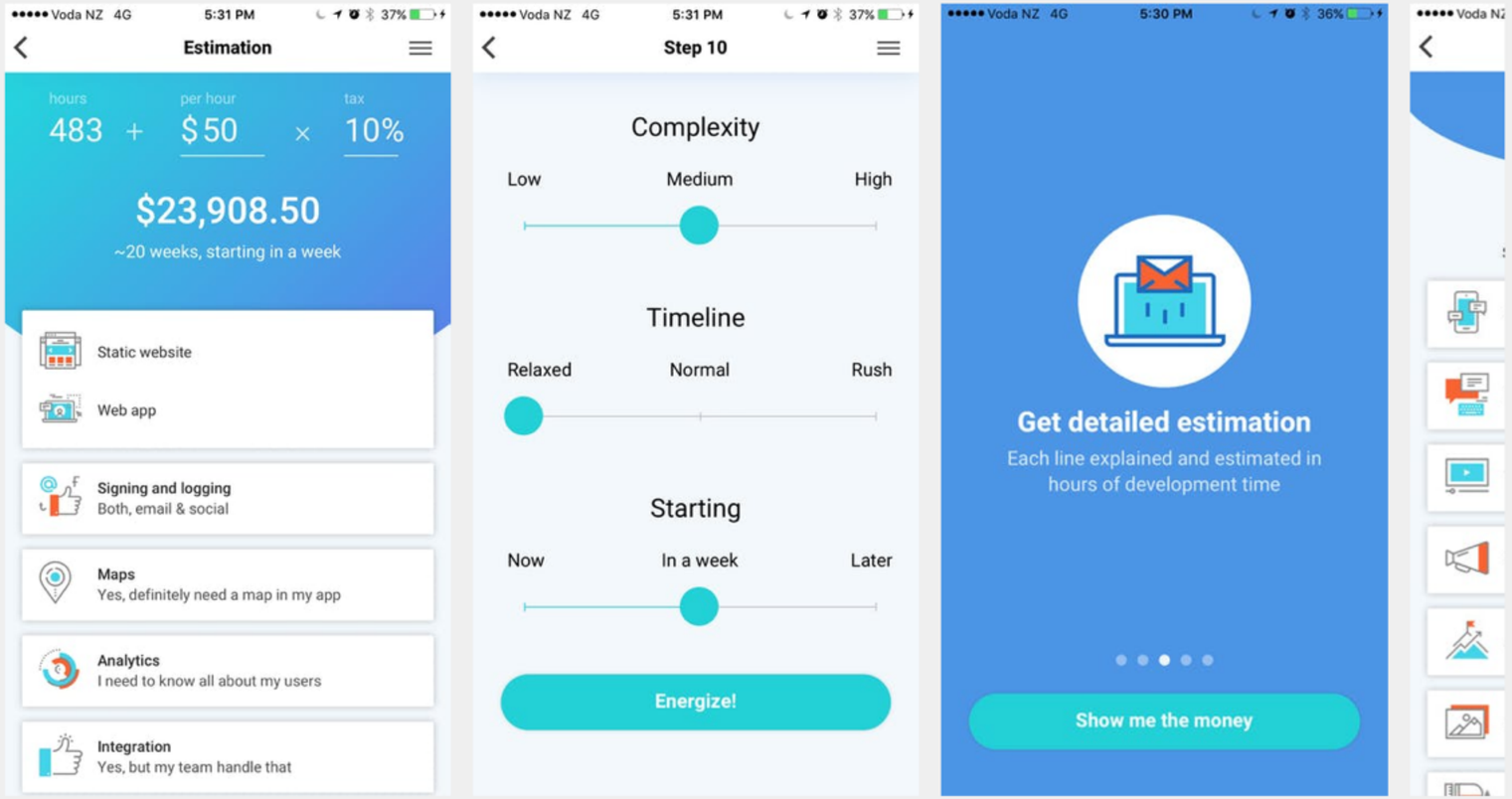
FEATURED A MONTH AGO

Estimapp 2.0

How much does it really cost to make an app?

ANDROID IPHONE SALES + 3

GET IT ▾ ▲ 1395 SHARE



STARTUP**STASH**

A curated directory of resources & tools to help you build your Startup

Search for the right tool

Search by Algolia

Idea generation

Naming

Domain names

Hosting

Market research

Market research

Forms & Surveys

Mockups & Wireframing

Design

Development

Deployment

Dying of dysentery.

Cards Against Humanity

Coming to Broadway this season, _____: The Musical.

Cards Against Humanity

Dead parents.

Cards Against Humanity

_____. That's how I want to die.

Cards Against Humanity

TSA guidelines now prohibit _____ on airplanes.

Cards Against Humanity

Repression.

Cards Against Humanity

Maybe she's born with it. Maybe it's _____.

Cards Against Humanity

Being marginalized.

Cards Against Humanity

What's a girl's best friend?

Cards Against Humanity

I'm sorry, Professor, but I couldn't complete my homework because of _____.

Cards Against Humanity

I drink to forget _____

Cards Against Humanity

A bag of magic beans.

Cards Against Humanity

The art of seduction.

Cards Against Humanity

Estrogen.

Cards Against Humanity

Sexual tension.

Cards Against Humanity

Today on Maury: "Help! My son is _____!"

Cards Against Humanity

It's a pity that kids these days are all getting involved with _____.

Cards Against Humanity

What's that smell?

Cards Against Humanity

The new Chevy Tahoe. With the power and space to take _____ everywhere you go.

Cards Against Humanity

The class field trip was completely ruined by _____

Cards Against Humanity

What gives me uncontrollable gas?

Cards Against Humanity

Powerful thighs.

Cards Against Humanity

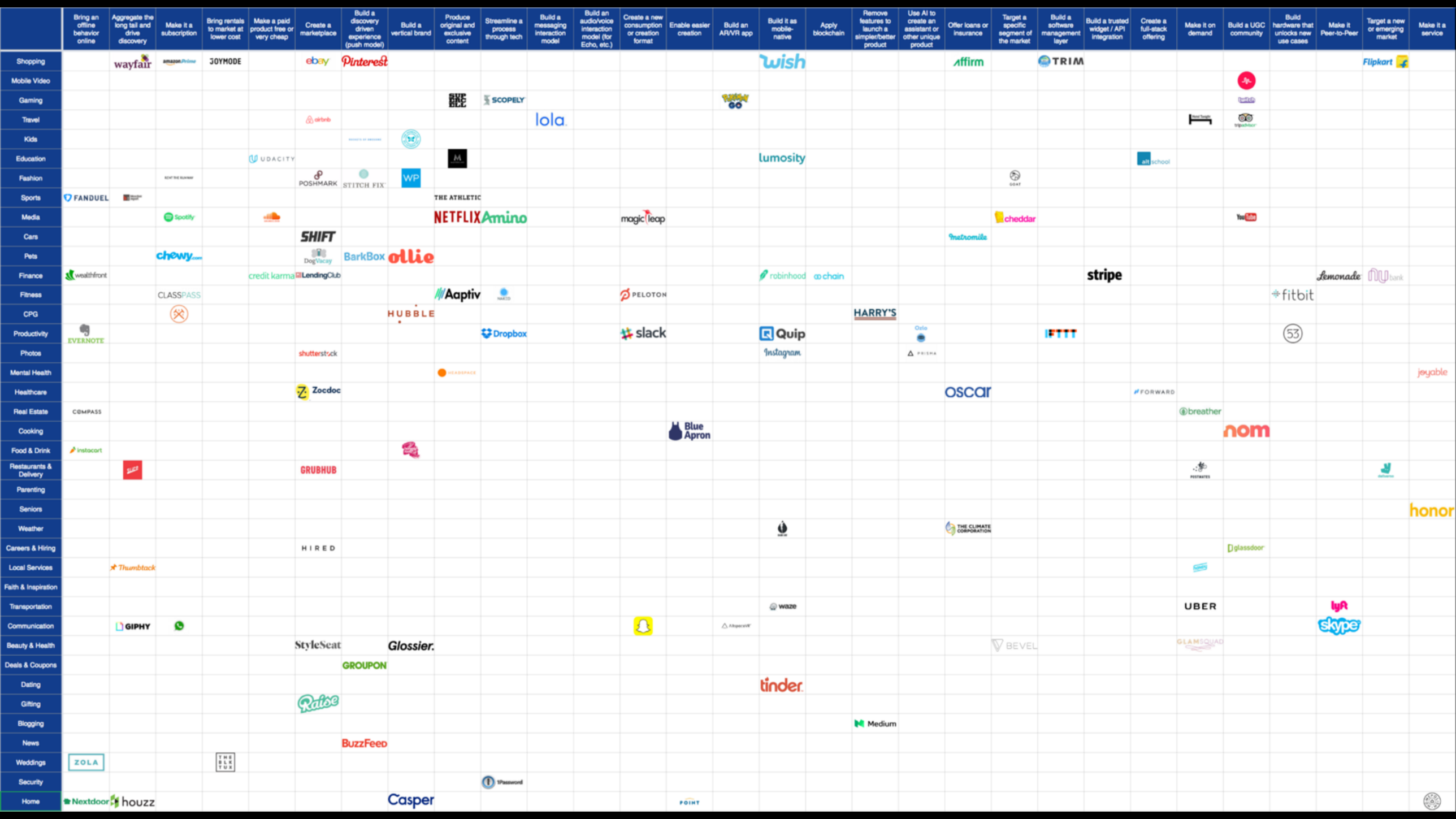
Next on ESPN2, the World Series of _____.

Cards Against Humanity

The invisible hand.

Cards Against Humanity

API list: http://apilist.fun


Bring an offline behavior online
Aggregate the long tail and drive discovery
Make it a subscription
Bring rentals to market at lower cost
Make a paid product free or very cheap
Create a marketplace
Build a discovery driven experience (push model)
Build a vertical brand
Produce original and exclusive content
Streamline a process through tech
Build a messaging interaction model
Build an audio/voice interaction model (for Echo, etc.)
Create a new consumption or creation format
Enable easier creation
Build an AR/VR app
Build it as mobile-native
Apply blockchain
Remove features to launch a simpler/better product
Use AI to create an assistant or other unique product
Offer loans or insurance
Target a specific segment of the market
Build a software management layer
Build a trusted widget / API integration
Create a full-stack offering
Make it on demand
Build a UGC community
Build hardware that unlocks new use cases
Make it Peer-to-Peer
Target a new or emerging market
Make it a service
Shopping
Mobile Video
Gaming
Travel
Kids
Education
Fashion
Sports
Media
Cars
Pets
Finance
Fitness
CPG
Productivity
Photos
Mental Health
Healthcare
Real Estate
Cooking
Food & Drink
Restaurants & Delivery
Parenting
Seniors
Weather
Careers & Hiring
Local Services
Faith & Inspiration
Transportation
Communication
Beauty & Health
Deals & Coupons
Dating
Gifting
Blogging
News
Weddings
Security
Home
wayfair
amazon Prime
JOYMODE
ebay
Pinterest
wish
Affirm
TRIM
Flipkart
SCOPELY
lola.
airbnb
lumosity
UDACITY
POSHMARK
STITCH FIX
WP
GOAT
FANDUEL
THE ATHLETIC
Spotify
NETFLIX
Amino
magic leap
cheddar
YouTube
SHIFT
Instacart
chewy.com
DogVacay
BarkBox
ollie
wealthfront
credit karma
LendingClub
robinhood
chain
stripe
Lemonade
nubank
CLASSPASS
Aaptiv
PELOTON
fitbit
HUBBLE
HARRY'S
EVERNOTE
Dropbox
slack
Quip
Oslo
IFTTT
53
shutterstock
Instagram
PRISMA
HEADSPACE
Zocdoc
OSCAR
FORWARD
COMPASS
breather
Blue Apron
nom
instacart
GRUBHUB
POSTMATES
HIRED
glassdoor
Thumbtack
honor
THE CLIMATE CORPORATION
waze
UBER
lyft
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BEVEL
GROUPON
tinder.
Raise
Medium
BuzzFeed
ZOLA
houzz
Casper
1Password
POINT