Damian Ward
Vocalink / Mastercard / BITUG

CRYPTO CURRENCIES #102 BRING ON THE ALTCOINS

January 6, 2018

Cryptocurrencies beyond Bitcoin

Altcoin, what's an Altcoin.?

- Bitcoin is a cryptocurrency and worldwide payment system released in 2009
- Today Bitcoin is one of 1000's of cryptocurrencies
- Bitcoin represents around 35% (and falling) of the cryptocurrency market
- Cryptocurrencies that are not Bitcoin are known as Altcoins

Bitcoin is grabbing headlines in 2017

"Bitcoin is the most important invention in the history of the world since the Internet."

- Roger Ver

"Bitcoin will do to banks what email did to the postal industry"

- Rick Falkvinge, Founder of the Swedish pirate party

James Altucher predicts bitcoin will reach $1 million by 2020

- Outspoken libertarian and MGT Capital Investments CEO John McAfee tweets he predicts bitcoin will reach $1 million by the end of 2020, double his previous forecast.
- "I'll say $1 million by 2020, as well, easily," James Altucher says on CNBC's "Squawk Alley." "There's 15 million millionaires around the world. All their financial advisors are going to say, 'Hey, buy a bitcoin. You need some exposure."
- Bitcoin hit a record high of $11,377.33 earlier in the day, according to CoinDesk.

Evelyn Cheng | @chengevelyn
Published 12:21 PM ET Wed, 29 Nov 2017 | Updated 12:40 PM ET Wed, 29 Nov 2017

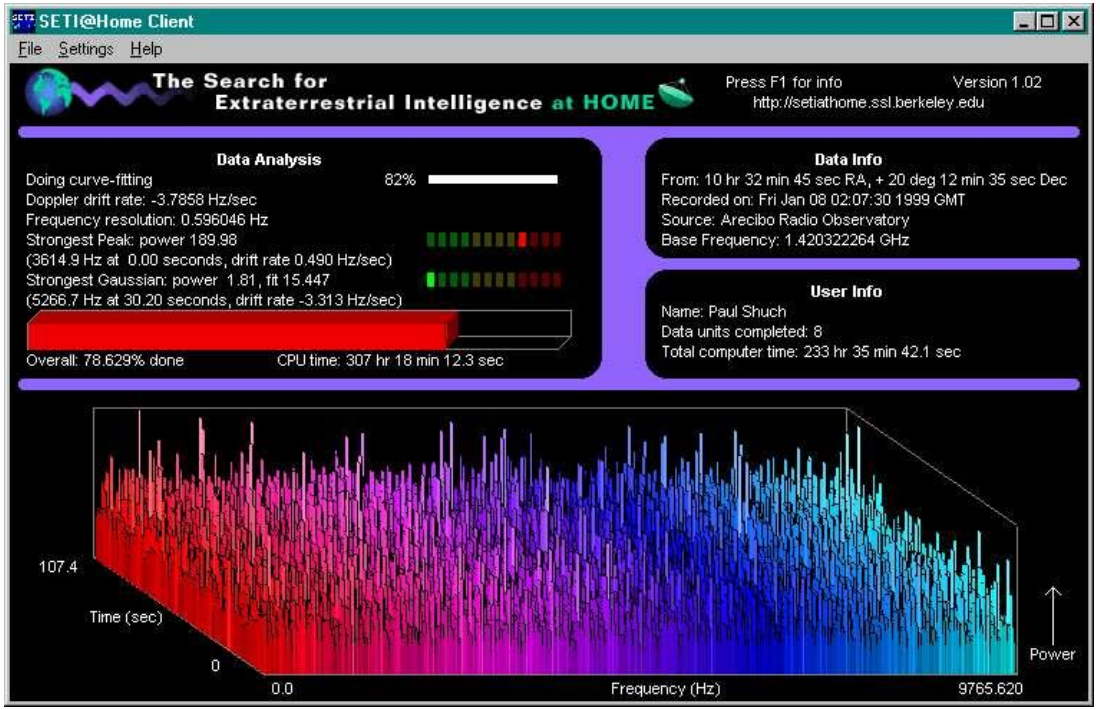
'Bitcoin is a FRAUD': JP Morgan boss Jamie Dimon says he will FIRE staff trading bitcoin

BITCOIN is a dangerous fraud and any employee at JP Morgan found trading the cryptocurrency will be fired, according to boss Jamie Dimon.

January 6, 2018

10 years ago…

- I was helping the search for alien lifeforms.
- I should have been mining Bitcoin



Crypto Currencies 101

- A **cryptocurrency** is a digital asset designed to work as a medium of exchange.
- Bitcoin was the first decentralized cryptocurrency created in 2009
- Cryptocurrency transactions are placed into blocks and written to a distributed ledger, the Blockchain.
- The **bitcoin** (abbreviated **BTC** or **XBT**) is the unit that was used in the original Bitcoin wallet software created by Satoshi Nakamoto.

Crypto Currencies 101

- Most cryptocurrencies, including bitcoin have 8 decimal places.
- 1 BTC = 1.00000000, 0.00000001 is called a santoshi
- Move towards ISO 4217 compliant codes. (XMR, XBT etc..)
- The process of solving or committing a block of transactions to the blockchain is called **mining.**
- bitcoin's **proof of work** mining does two things:
  - it ensures that the next block in a blockchain is the one and only version of the truth,
  - keeps attackers from derailing the system and successfully forking the chain.

What in mining

- Change the block to find a SHA-256 hash value beginning with '000’.
- Vary the string by adding an integer ‘nonce’ and incrementing.
- Finding a match for "Hello, world!" takes us 4251 tries

```
"Hello, world!0"    => 1312af178c253f84028d480a6adc1e25e81caa44c749ec81976192e2ec93
"Hello, world!1"    => e9afc424b79e4f6ab42d99c81156d3a17228d6e1eef4139be78e948a9332
"Hello, world!2"    => ae37343a357a8297591625e7134cbea22f5928be8ca2a32aa475cf05fd42
"Hello, world!4248" => 6e110d98b388e77e9c6f042ac6b497cec46660deef75a55ebc7cfdf65cc0
"Hello, world!4249" => c004190b822f1669cac8dc37e761cb73652e7832fb814565702245cf26eb
"Hello, world!4250" => 0000c3af42fc31103f1fdc0151fa747ff87349a4714df7cc52ea464e12dc
```

- As difficulty increases the number of required zeros also increases.
- In Bitcoin there should be a new block every 10 minutes.
- It doesn't matter how the nonce changes, most of the time it's just a number counting upwards from 0

Mining rewards

- The reward is automatically adjusted so that, every four years, half the amount of bitcoins created in the prior 4 years are created.
- A maximum of 10,499,889 bitcoins were created in the first 4 (approx.) years from January 2009 to November 2012.
- Every four years thereafter this amount halves, so it should be 5,250,000 over years 4-8, 2,625,000 over years 8-12, and so on.
- The total number of bitcoins can never exceed 20,999,839

Mining proof of work

- In **proof of work**, miners compete to add the next block (a set of transactions) in the chain by racing to solve a extremely difficult cryptographic puzzle. The first to solve the puzzle, wins the lottery.
- As a reward for his or her efforts, the miner receives newly minted bitcoins – and a small transaction fee.
- The coin value of a block is 50 BTC for each of the first 210,000 blocks, 25 BTC for the next 210,000 blocks, then 12.5 BTC, 6.25 BTC and so on.

Mining hardware evolution

CPU Mining

- Early Bitcoin client versions allowed users to use their CPUs to mine.
- The advent of GPU mining made CPU mining financially unviable.
- The option was therefore removed from the core Bitcoin client's user interface.

GPU Mining

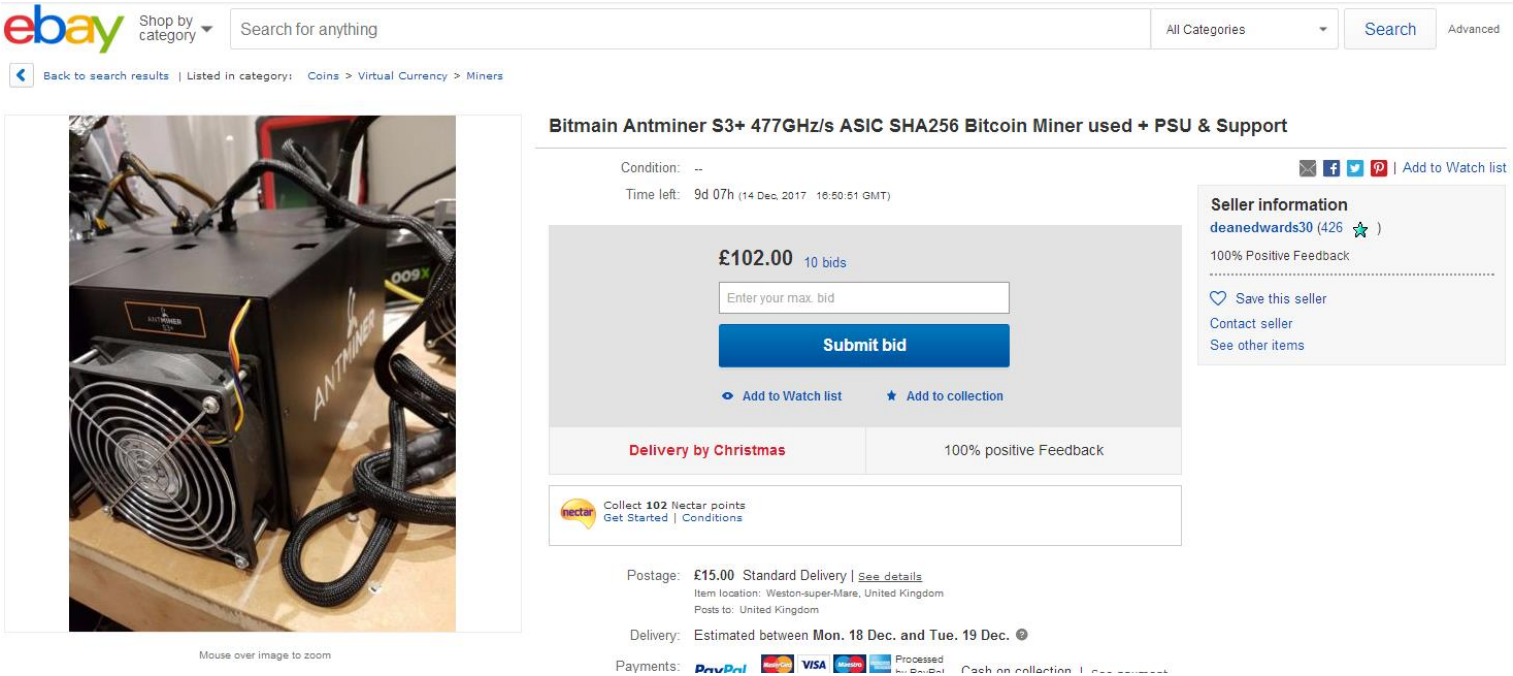
- GPU Mining is drastically faster and more efficient than CPU mining
- Uses high performance graphics cards

ASIC Mining

- An application-specific integrated circuit, or *ASIC*, designed and manufactured for a very specific purpose.
- ASICs designed for Bitcoin mining were first released in 2013.
- For the amount of power they consume, they are vastly faster than all previos technologies.

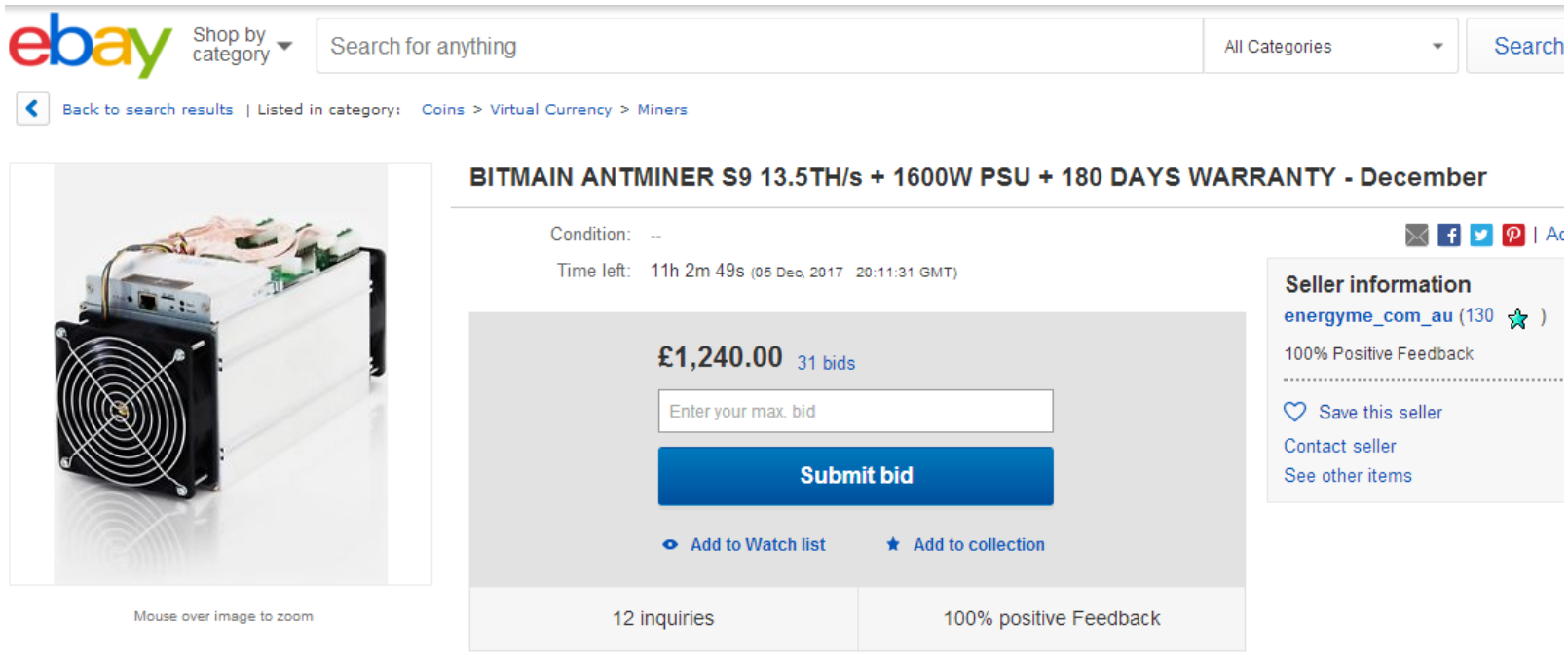
Bitmain mining hardware

- Entry Level mining @ 450GH/s circa 2014

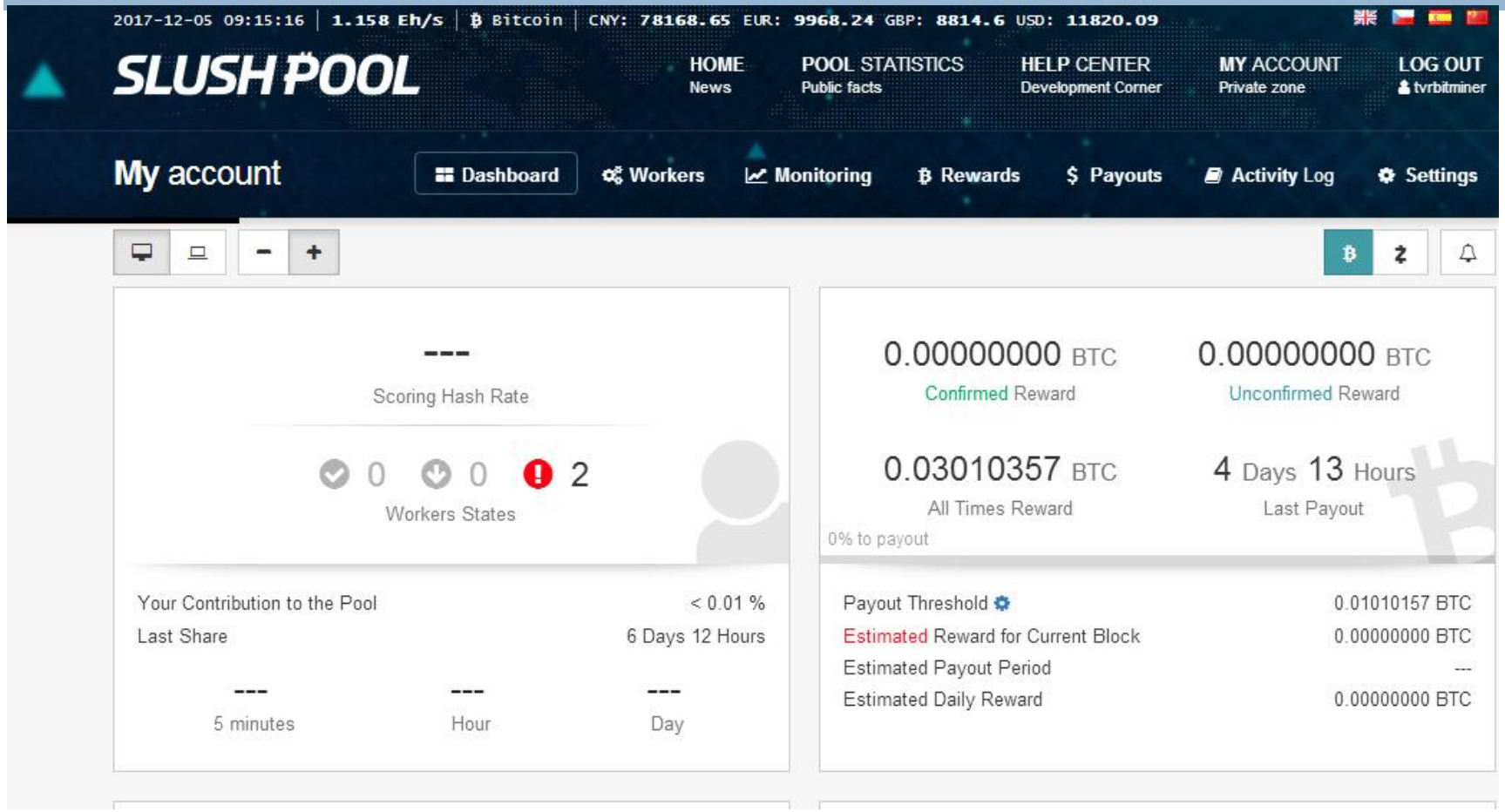


Bitmain mining hardware

- Mining @ 13.5TH/s circa 2016

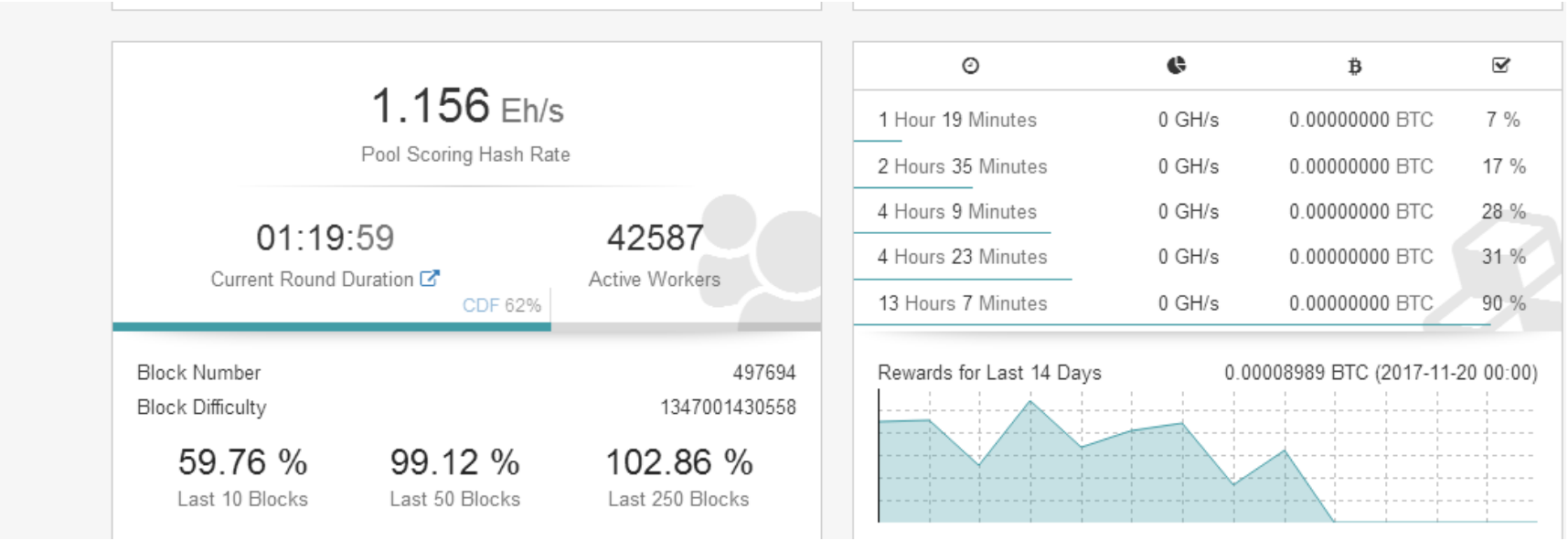


Slushpool mining pool dashboard



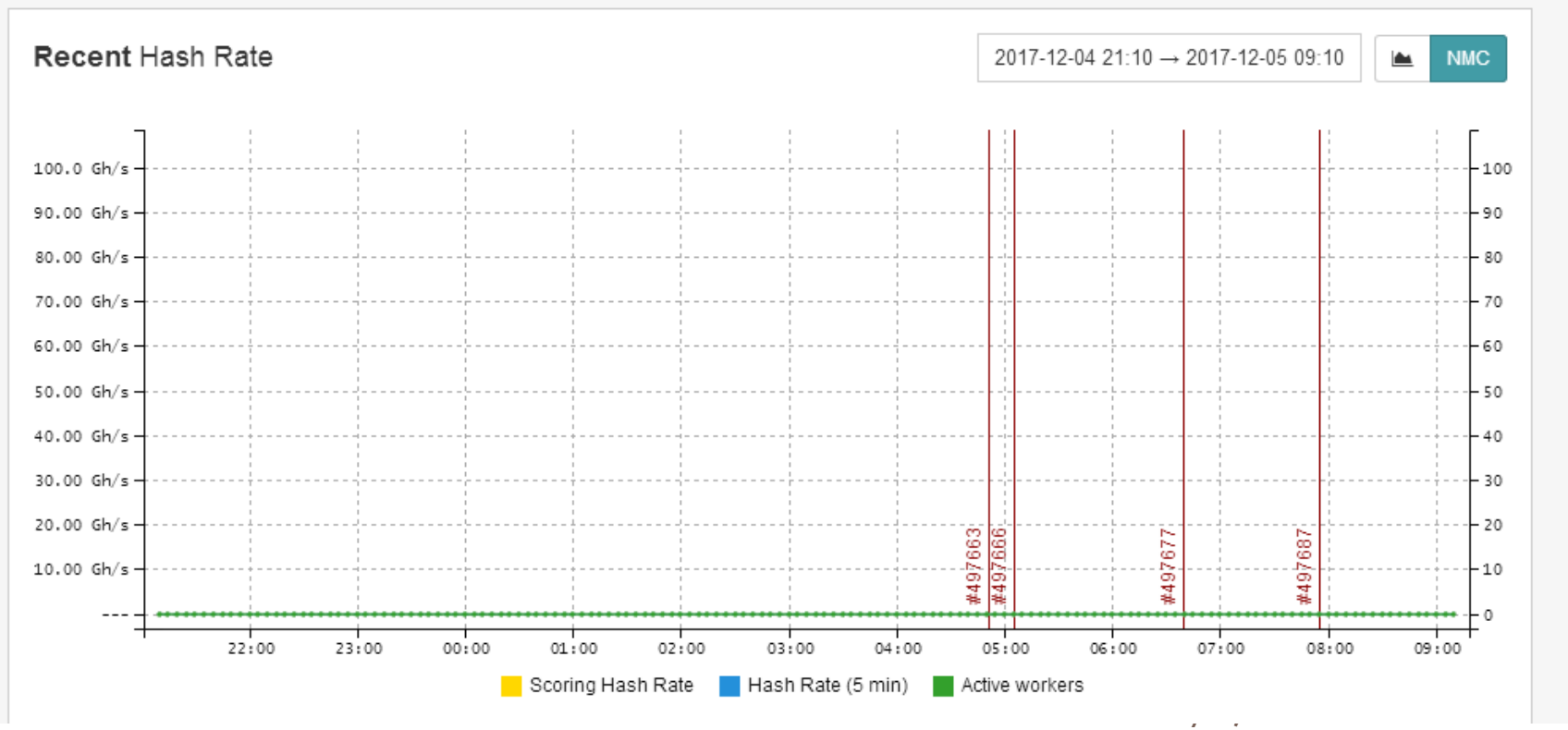
Slushpool mining poo dashboard

- Showing pool hashrate.. 1.156 Eh/s !!



Slushpool mining pool dashboard

- Showing pool block completion events



Commercial mining

- Mining servers on shelves.

Commercial mining

- Shelves in racks..

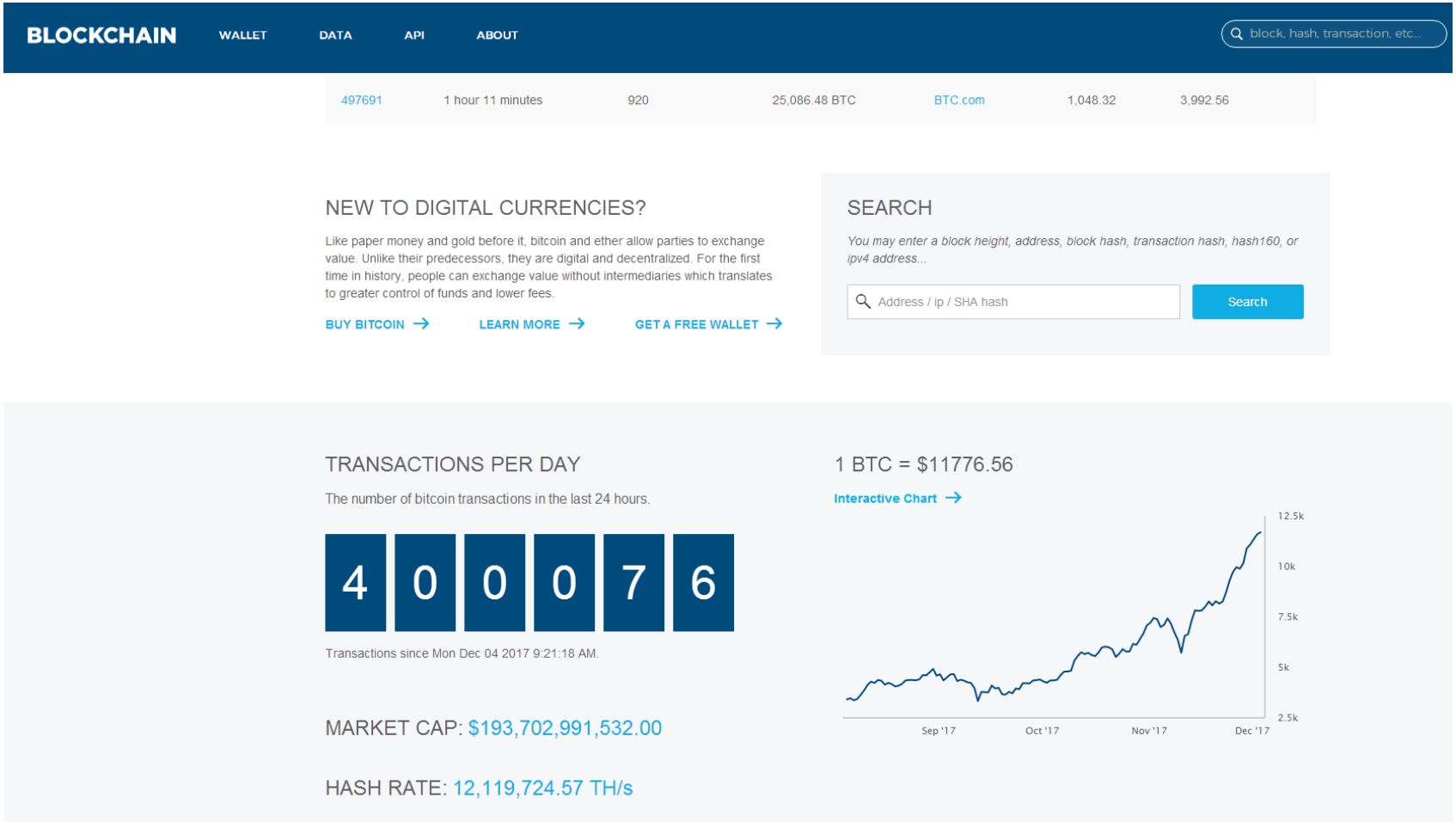
Commercial mining

- Racks in warehouses…

Commercial mining

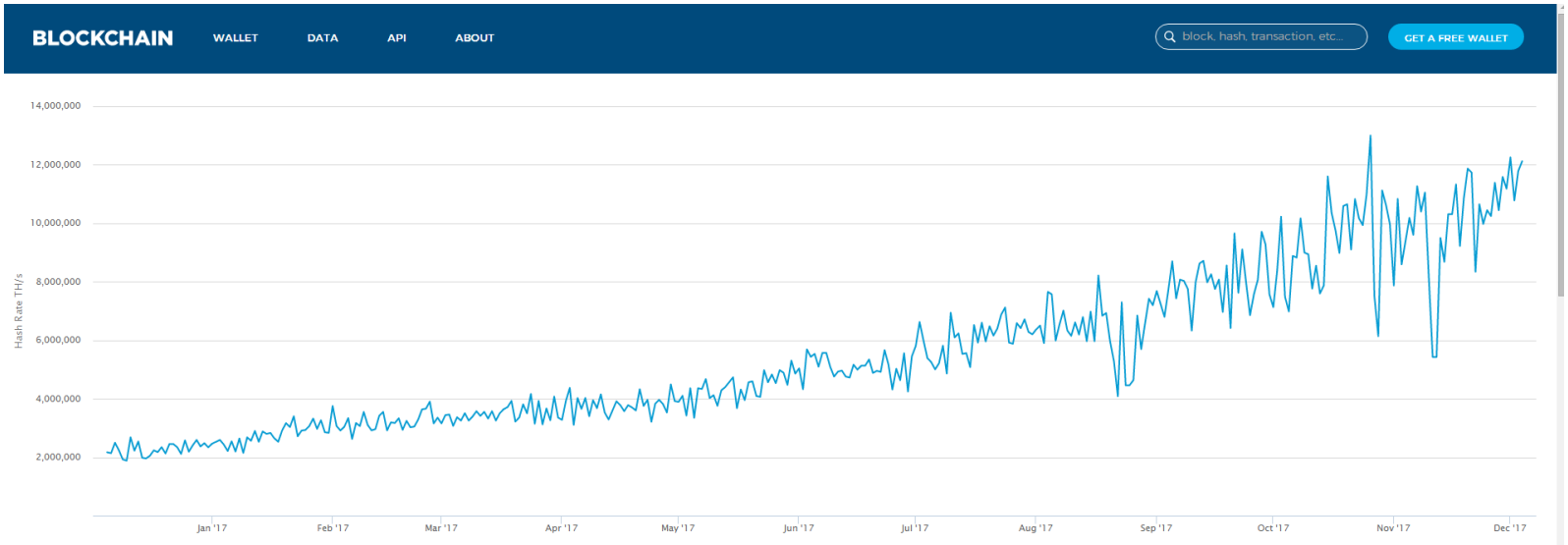
- Lots or warehouses..

Bitcoin blockchain stats



January 6, 2018

Bitcoin mining hashrate



- 12,000,000 TH/s = 1.2e+19 hashes per second 12,000,000,000,000,000,000 (Twelve quintillion.)
- 1 kH/s is 1,000 hashes per second (sometimes mistakenly written KH/s).
- 1 MH/s is 1,000,000 hashes per second.
- 1 GH/s is 1,000,000,000 hashes per second.
- 1 TH/s is 1,000,000,000,000 hashes per second.
- 1 PH/s is 1,000,000,000,000,000 hashes per second

Bitcoin market value

Where does the value of Bitcoin stem from? What backs up Bitcoin?

- Bitcoins have value because they are **useful** and **scarce**.
- Bitcoins, like dollars, euros and sterling is not backed by anything except the variety of merchants that accept them.
- If confidence in Bitcoins is lost then it will not matter that the supply can no longer be increased, the demand will fall off with all holders trying to get rid of their coins.

Perhaps is not a science..

Fugazi

Lost bitcoins (estimated @ 25%)

'I could have gone around the world or bought a yacht': How throwing out one computer part cost an Australian tech expert $4.8 MILLION

- A man who spent $25 on internet currency says he missed out c
- Campbell Simpson threw out hardware with now extremely valu
- The tech writer had 1400 Bitcoins which are now worth over $3
- He says he missed out on incredible wealth because he unknow out

By APRIL GLOVER FOR DAILY MAIL AUSTRALIA
PUBLISHED: 01:49, 26 May 2017 | **UPDATED:** 01:55, 26 May 2017

1,400 BTC $5.4m

8500 BTC $93.5m

Missing: hard drive containing Bitcoins worth £4m in Newport landfill site

A digital 'wallet' containing 7,500 Bitcoins that James Howells generated on his laptop is buried under four feet of rubbish

The 7,500 Bitcoins on the hard drive were worth around £500,000 when it was thrown in the rubbish. Since then, the value has soared. Photograph: Owen Humphreys/PA

January 6, 2018

Bitcoin exchange hacks

- January 2014, Mt Gox was the largest bitcoin exchange in the world, handling over 70% of all bitcoin transactions worldwide.
- The Mt. Gox was hacked, 740,000 BTC $460 million stolen (6% of all bitcoins at the time)
- Now valued at over $3 billion (October 2017)
- 200,000 BTC recovered, 650,000 BTC still missing, exchange declares insolvency

- On 7th December 2017 the NiceHash exchange hacked 4,736 BTC, $64m stolen exchange declares insolvency

Spent bitcoins

10,000 BTC $110m

On May 22, 2010, a developer bought two pizzas using 10,000 units of a then-little-known digital currency called bitcoin.

Today, 10,000 bitcoins are worth more than $20 million (£15.4 million).

Bitcoin is going nuclear. Its price is tearing upward, with each bitcoin worth $2,128 (£1,638) — a little shy of its all-time-high of $2,185 (£1,682) reached earlier Monday morning.

Just a year ago, it was trading at just $443 (£341), after deflating

Laszlo Hanyecz bought these pizzas for 10,000 bitcoins on May 22, 2010. Laszlo Hanyecz

New Billionaires

- The Winklevoss twins, famously known for suing Mark Zuckerberg
- Bitcoin billionaires, Cameron and Tyler Winklevoss won $65 million from the Facebook lawsuit, and invested $11 million of their payout into Bitcoin (@$120) in 2013.
- The twins amassed one of the largest portfolios of Bitcoin in the world equating to 1% f the entire currency's dollar value equivalent.

Richest bitcoin wallets

Balance	Addresses	% Addresses (Total)	Coins	$USD	% Coins (Total)
0 - 0.001	13471918	56.43% (100%)	2,385 BTC	27,933,309 USD	0.01% (100%)
0.001 - 0.01	4464268	18.7% (43.57%)	18,211 BTC	213,290,587 USD	0.11% (99.99%)
0.01 - 0.1	3646277	15.27% (24.87%)	114,507 BTC	1,341,121,332 USD	0.69% (99.88%)
0.1 - 1	1603480	6.72% (9.6%)	516,022 BTC	6,043,713,590 USD	3.09% (99.19%)
1 - 10	536864	2.25% (2.89%)	1,437,608 BTC	16,837,432,299 USD	8.6% (96.1%)
10 - 100	134303	0.56% (0.64%)	4,427,781 BTC	51,858,687,899 USD	26.5% (87.5%)
100 - 1,000	16271	0.07% (0.08%)	3,787,504 BTC	44,359,688,267 USD	22.67% (61%)
1,000 - 10,000	1561	0.01% (0.01%)	3,388,496 BTC	39,686,461,650 USD	20.28% (38.33%)
10,000 - 100,000	112	0% (0%)	2,755,280 BTC	32,270,161,717 USD	16.49% (18.05%)
100,000 - 1,000,000	2	0% (0%)	260,872 BTC	3,055,367,737 USD	1.56% (1.56%)

Addresses richer than						
1 USD	100 USD	1,000 USD	10,000 USD	100,000 USD	1,000,000 USD	10,000,000 USD
17,242,820	6,445,514	2,464,046	767,367	167,592	20,665	1,979

Bitcoin UTXOs cumulative chart

Bitcoin mining electricity consumption

- Bitcoin mining could provide power for 2.4 million Americans or 6.1 million Britons.
- If bitcoin miners were one country, it would be ranked 61st in the world based on electricity consumption, comparable to Morocco or Slovakia.

Bitcoin mining uses more electricity than 159 countries

Published time: 3 Dec, 2017 09:03 Get short URL

© Drahoslav Ramik / Global Look Press

The surge of interest in bitcoin has triggered not only skyrocketing prices and endless debate on whether it's bubble, but also an enormous increase in electricity consumption all over the world.

According to Digiconomist's Bitcoin Energy Consumption Index, as of November 20th bitcoin's current estimated annual

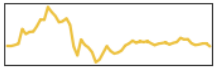
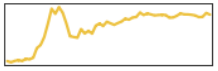
Altcoins

- As of 27 November 2017 over 1324 cryptocurrency specifications exist (and growing)
- Vitalik Buterin, Ethereum's founder and chief scientist, predicts that 90% of token startups will fail
- 9 of 10 startups fail in business too.

Coin market Capitalisation

- https://coinmarketcap.com/

Cryptocurrencies: **1324** / Markets: **7070** Market Cap: **$337,252,294,275** / 24h Vol: **$13,441,623,702** / BTC Dominance: **55.9%**

#	Name	Market Cap	Price	Volume (24h)	Circulating Supply	Change (24h)	Price Graph (7d)
1	Bitcoin	$189,063,627,728	$11,308.20	$6,670,670,000	16,719,162 BTC	-2.17%	
2	Ethereum	$44,387,298,910	$461.76	$1,019,530,000	96,127,173 ETH	-3.45%	
3	Bitcoin Cash	$25,657,821,316	$1,523.86	$868,458,000	16,837,388 BCH	-5.68%	
4	Ripple	$9,650,928,367	$0.249876	$128,904,000	38,622,870,411 XRP *	-3.85%	
5	IOTA	$6,398,840,050	$2.30	$782,988,000	2,779,530,283 MIOTA *	42.88%	
6	Dash	$5,822,979,421	$753.03	$181,177,000	7,732,743 DASH	-5.12%	
7	Bitcoin Gold	$5,347,161,158	$320.43	$176,090,000	16,687,611 BTG	-4.54%	
8	Litecoin	$5,303,176,760	$97.99	$351,335,000	54,121,283 LTC	-4.65%	
9	Cardano	$3,428,958,787	$0.132254	$68,620,100	25,927,070,538 ADA *	-2.92%	
10	Monero	$3,008,655,805	$194.95	$68,308,700	15,433,120 XMR	-5.26%	

Mining – proof of stake

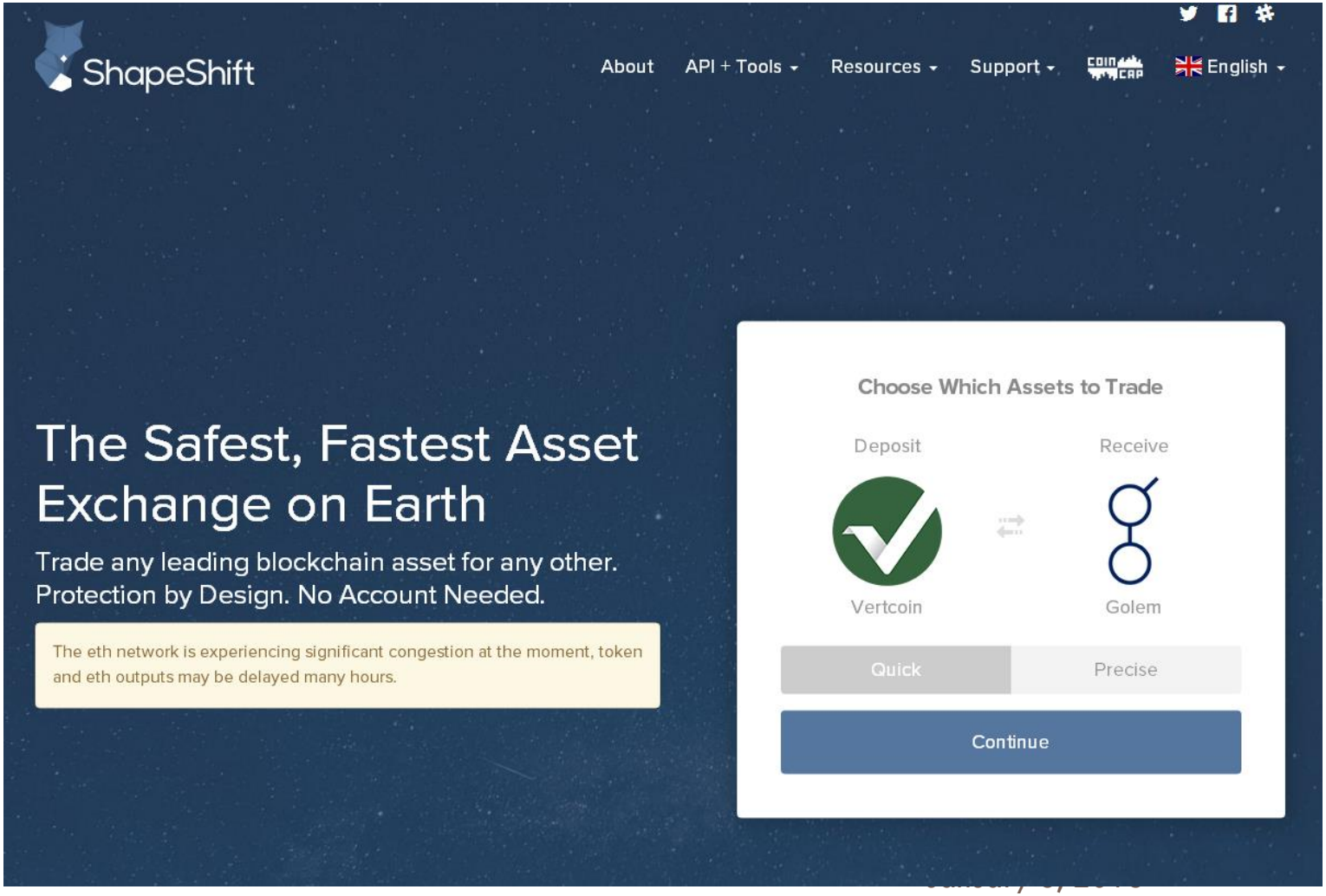
- The most common alternative to proof of work is proof of stake.
- In this type of consensus algorithm, instead of investing in expensive computer equipment in a race to mine blocks, a 'validator' invests in the coins of the system.
- Note the term validator. That's because no coin creation (mining) exists in proof of stake. Instead, all the coins exist from day one, and validators are paid strictly in transaction fees.
- In proof of stake, your chance of being picked to create the next block depends on the fraction of coins in the system you own.
- A validator with 300 coins will be three times as likely to be chosen as someone with 100 coins.

CryptoKitty, shows Ethereum limitations

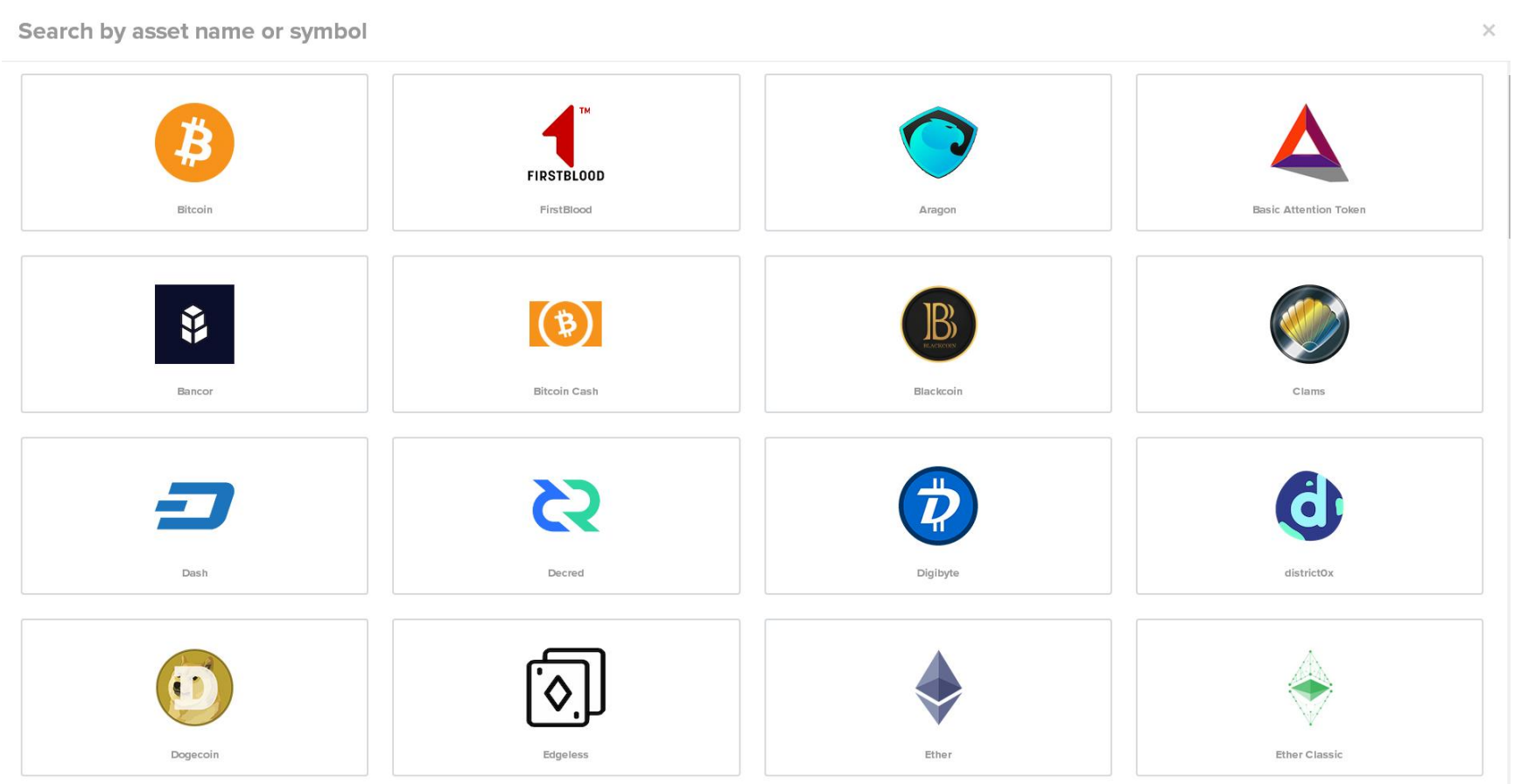
Kitten number 23 was first traded for over $4,000 on Dec. 2. Two days later, it was sold on for over $32,000. Yesterday, a user named It's All About The Money paid about $63,000 for it, and it's now one of the most expensive cats for sale in that user's stable. It's on offer for 240.12 ether, or about $106,000 at current prices.

- Kitten number 23, yours for $106,000

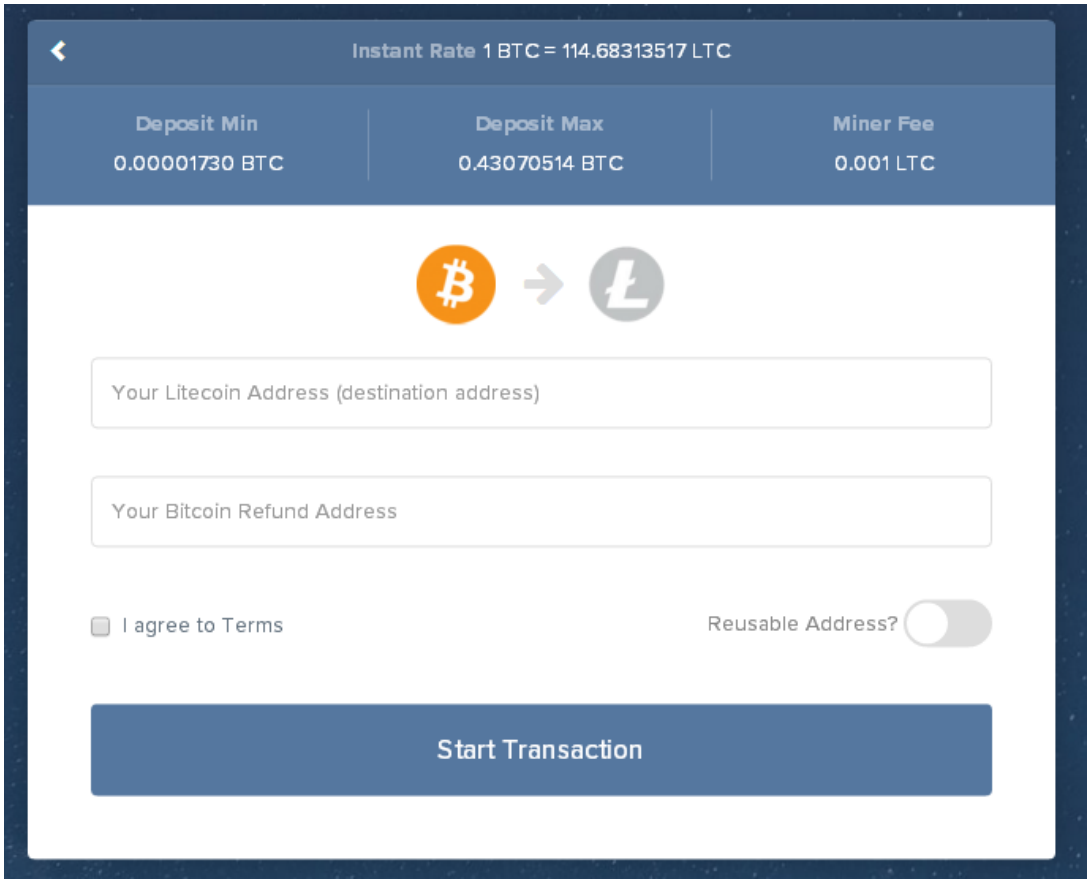
Shapeshift, anonymous exchange



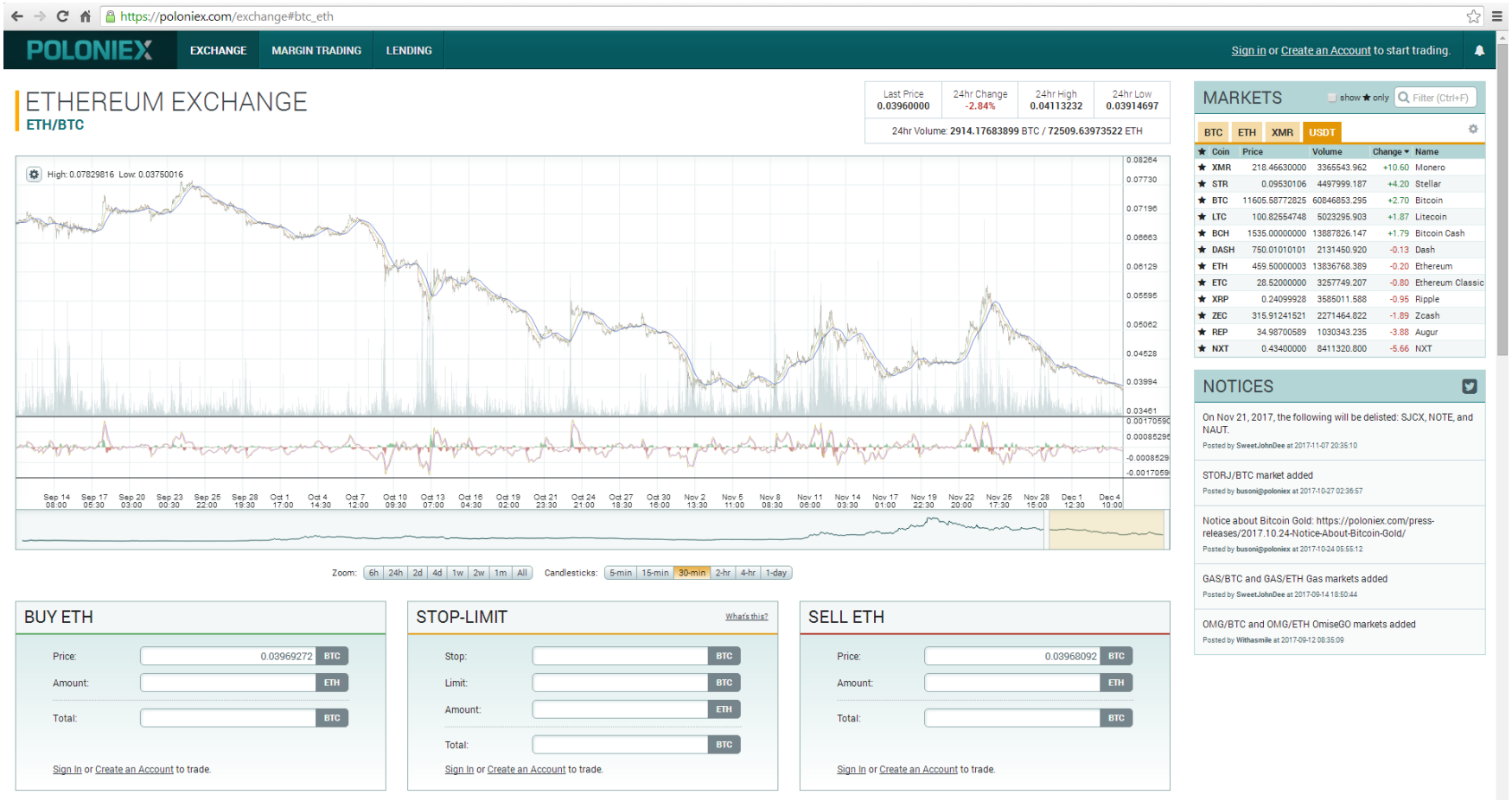
Shapeshift, select assets



Shapeshift, make an exchange

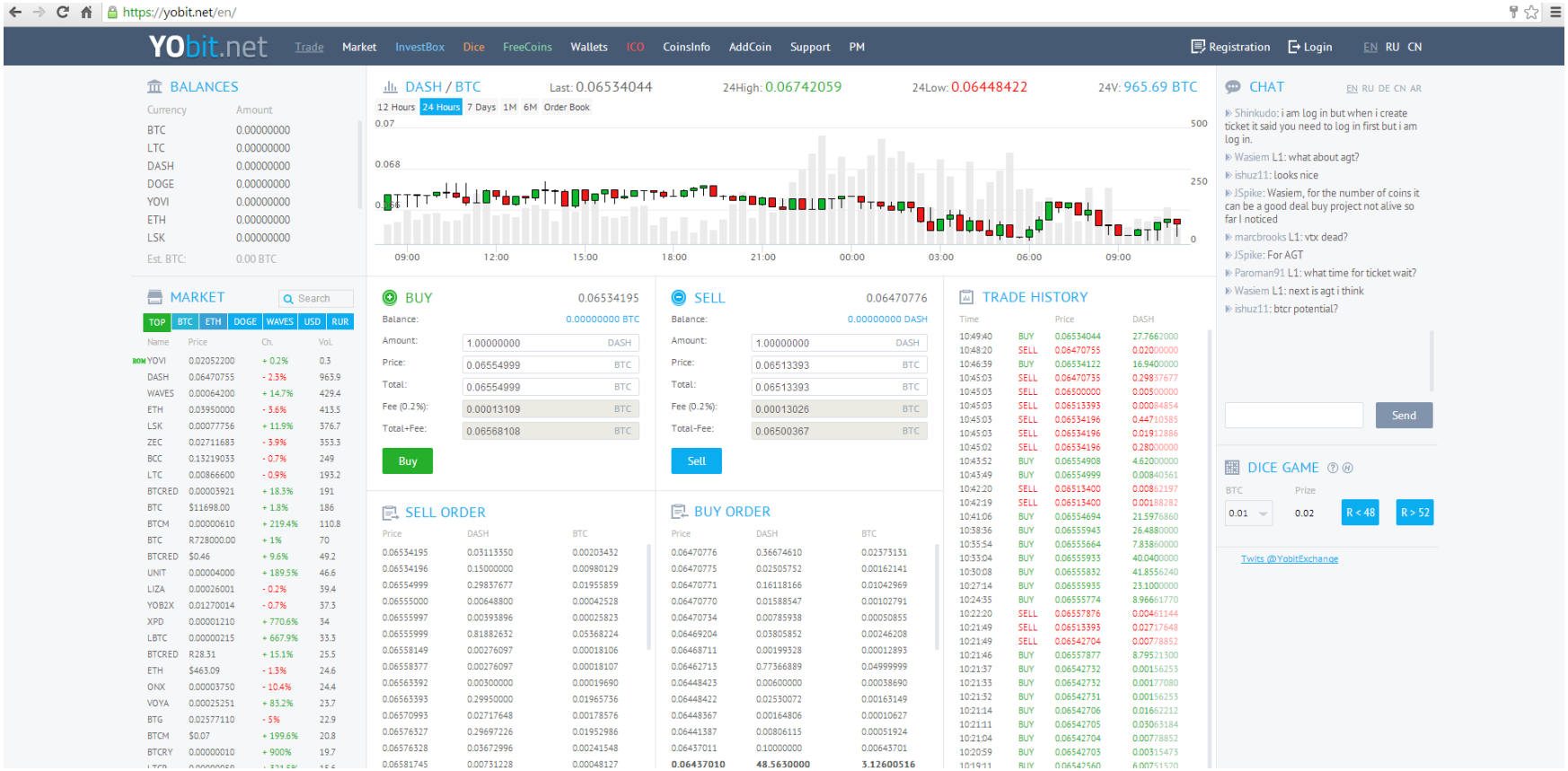


Poloniex

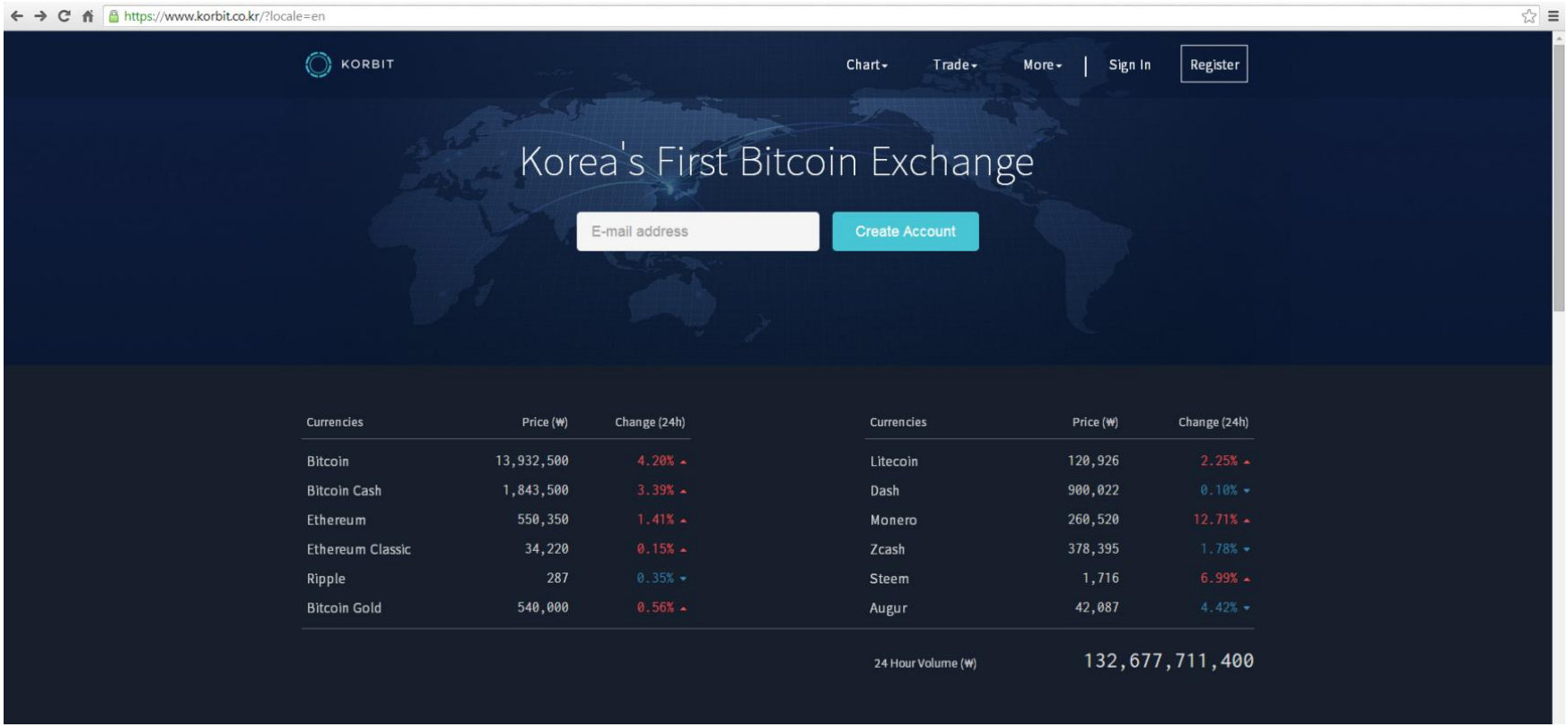


January 6, 2018

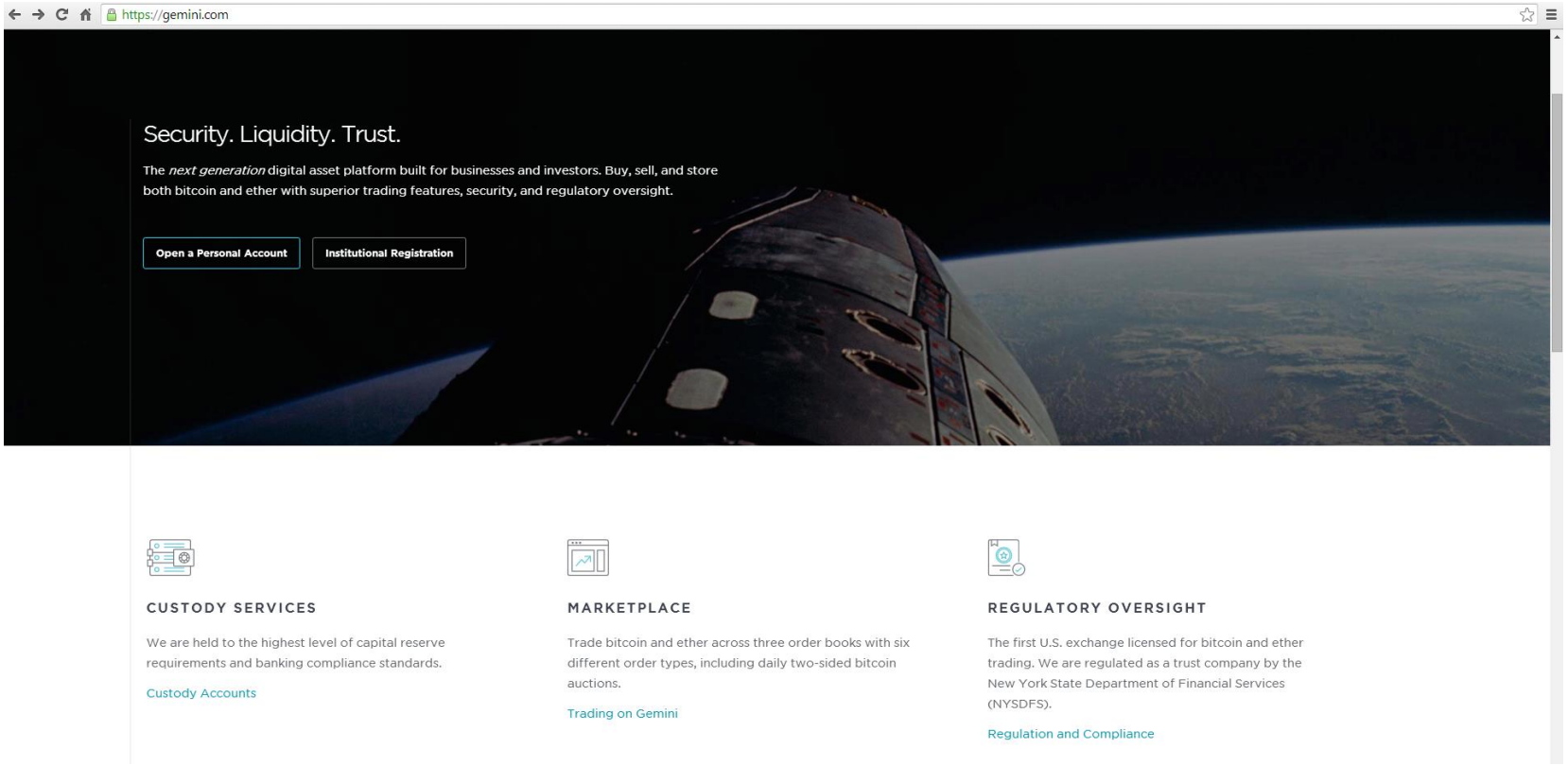
Yobit


https://yobit.net/en/
YObit.net
Trade Market InvestBox Dice FreeCoins Wallets ICO CoinsInfo AddCoin Support PM
Registration Login EN RU CN
BALANCES
Currency Amount
BTC 0.00000000
LTC 0.00000000
DASH 0.00000000
DOGE 0.00000000
YOVI 0.00000000
ETH 0.00000000
LSK 0.00000000
Est. BTC: 0.00 BTC
DASH / BTC
Last: 0.06534044
24High: 0.06742059
24Low: 0.06448422
24V: 965.69 BTC
12 Hours 24 Hours 7 Days 1M 6M Order Book
09:00 12:00 15:00 18:00 21:00 00:00 03:00 06:00 09:00
CHAT
EN RU DE CN AR
Shinkudo: i am log in but when i create ticket it said you need to log in first but i am log in.
Wasiem L1: what about agt?
ishuz11: looks nice
JSpike: Wasiem, for the number of coins it can be a good deal buy project not alive so far I noticed
marcbrooks L1: vtx dead?
JSpike: For AGT
Paroman91 L1: what time for ticket wait?
Wasiem L1: next is agt i think
ishuz11: btcr potential?
Send
MARKET
Search
TOP BTC ETH DOGE WAVES USD RUR
Name Price Ch. Vol.
YOVI 0.02052200 + 0.2% 0.3
DASH 0.06470755 - 2.3% 963.9
WAVES 0.00064200 + 14.7% 429.4
ETH 0.03950000 - 3.6% 413.5
LSK 0.00077756 + 11.9% 376.7
ZEC 0.02711683 - 3.9% 353.3
BCC 0.13219033 - 0.7% 249
LTC 0.00866600 - 0.9% 193.2
BTCRED 0.00003921 + 18.3% 191
BTC $11698.00 + 1.8% 186
BTCM 0.00000610 + 219.4% 110.8
BTC R728000.00 + 1% 70
BTCRED $0.46 + 9.6% 49.2
UNIT 0.00004000 + 189.5% 46.6
LIZA 0.00026001 - 0.2% 39.4
YOB2X 0.01270014 - 0.7% 37.3
XPD 0.00001210 + 770.6% 34
LBTC 0.00000215 + 667.9% 33.3
BTCRED R28.31 + 15.1% 25.5
ETH $463.09 - 1.3% 24.6
ONX 0.00003750 - 10.4% 24.4
VOYA 0.00025251 + 83.2% 23.7
BTG 0.02577110 - 5% 22.9
BTCM $0.07 + 199.6% 20.8
BTCRY 0.00000010 + 900% 19.7
BUY 0.06534195
Balance: 0.00000000 BTC
Amount: 1.00000000 DASH
Price: 0.06554999 BTC
Total: 0.06554999 BTC
Fee (0.2%): 0.00013109 BTC
Total+Fee: 0.06568108 BTC
Buy
SELL 0.06470776
Balance: 0.00000000 DASH
Amount: 1.00000000 DASH
Price: 0.06513393 BTC
Total: 0.06513393 BTC
Fee (0.2%): 0.00013026 BTC
Total-Fee: 0.06500367 BTC
Sell
TRADE HISTORY
Time Price DASH
10:49:40 BUY 0.06534044 27.7662000
10:48:20 SELL 0.06470755 0.02000000
10:46:39 BUY 0.06534122 16.9400000
10:45:03 SELL 0.06470735 0.29837677
10:45:03 SELL 0.06500000 0.00500000
10:45:03 SELL 0.06513393 0.00084854
10:45:03 SELL 0.06534196 0.44710385
10:45:03 SELL 0.06534196 0.01912886
10:45:02 SELL 0.06534196 0.28000000
10:43:52 BUY 0.06554908 4.62000000
10:43:49 BUY 0.06554999 0.00840361
10:42:20 SELL 0.06513400 0.00862197
10:42:19 SELL 0.06513400 0.00188282
10:41:06 BUY 0.06554694 21.5976860
10:38:36 BUY 0.06555943 26.4880000
10:35:54 BUY 0.06555664 7.83860000
10:33:04 BUY 0.06555933 40.0400000
10:30:08 BUY 0.06555832 41.8556240
10:27:14 BUY 0.06555935 23.1000000
10:24:35 BUY 0.06555774 8.96661770
10:22:20 SELL 0.06557876 0.00461144
10:21:49 SELL 0.06513393 0.02717648
10:21:49 SELL 0.06542704 0.00778852
10:21:46 BUY 0.06557877 8.79521300
10:21:37 BUY 0.06542732 0.00156253
10:21:33 BUY 0.06542732 0.00177080
10:21:32 BUY 0.06542731 0.00156253
10:21:14 BUY 0.06542706 0.01662212
10:21:11 BUY 0.06542705 0.03065184
10:21:04 BUY 0.06542704 0.00778852
10:20:59 BUY 0.06542703 0.00315473
DICE GAME
BTC Prize
0.01 0.02 R < 48 R > 52
Twits @YobitExchange
SELL ORDER
Price DASH BTC
0.06534195 0.03113350 0.00203432
0.06534196 0.15000000 0.00980129
0.06554999 0.29837677 0.01955859
0.06555000 0.00648800 0.00042528
0.06555997 0.00393896 0.00025823
0.06555999 0.81882632 0.05368224
0.06558149 0.00276097 0.00018106
0.06558377 0.00276097 0.00018107
0.06563392 0.00300000 0.00019690
0.06563393 0.29950000 0.01965736
0.06570993 0.02717648 0.00178576
0.06576327 0.29697226 0.01952986
0.06576328 0.03672996 0.00241548
0.06581745 0.00731228 0.00048127
BUY ORDER
Price DASH BTC
0.06470776 0.36674610 0.02373131
0.06470775 0.02505752 0.00162141
0.06470771 0.16118166 0.01042969
0.06470770 0.01588547 0.00102791
0.06470734 0.00785938 0.00050855
0.06469204 0.03805852 0.00246208
0.06468711 0.00199328 0.00012893
0.06462713 0.77366889 0.04999999
0.06448423 0.00600000 0.00038690
0.06448422 0.02530072 0.00163149
0.06448367 0.00164806 0.00010627
0.06441387 0.00806115 0.00051924
0.06437011 0.10000000 0.00643701
0.06437010 48.5630000 3.12600516

Korbit

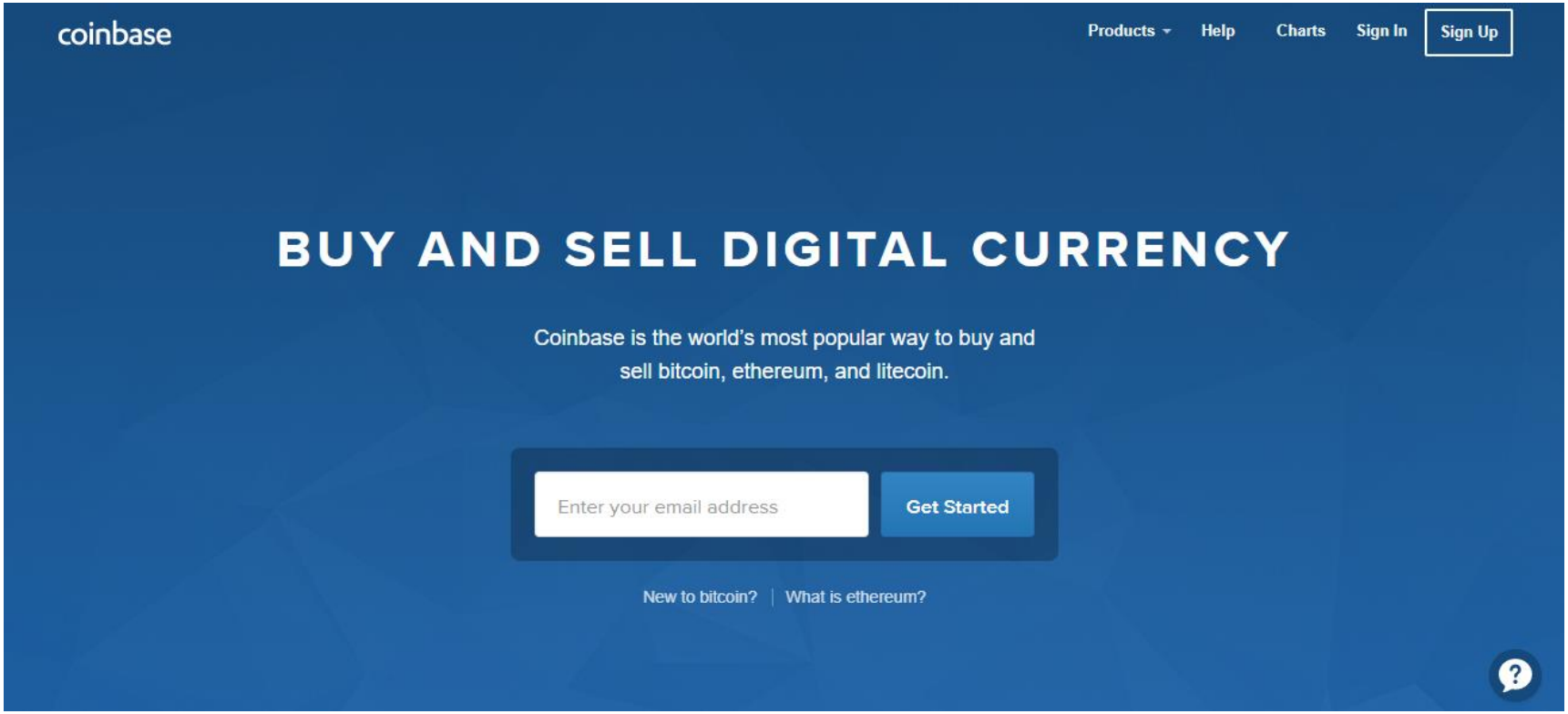

https://www.korbit.co.kr/?locale=en
KORBIT
Chart
Trade
More
Sign In
Register
Korea's First Bitcoin Exchange
E-mail address
Create Account
Currencies
Price (₩)
Change (24h)
Bitcoin 13,932,500 4.20%
Bitcoin Cash 1,843,500 3.39%
Ethereum 550,350 1.41%
Ethereum Classic 34,220 0.15%
Ripple 287 0.35%
Bitcoin Gold 540,000 0.56%
Currencies
Price (₩)
Change (24h)
Litecoin 120,926 2.25%
Dash 900,022 0.10%
Monero 260,520 12.71%
Zcash 378,395 1.78%
Steem 1,716 6.99%
Augur 42,087 4.42%
24 Hour Volume (₩)
132,677,711,400

Gemini (the Winklevoss exchange)

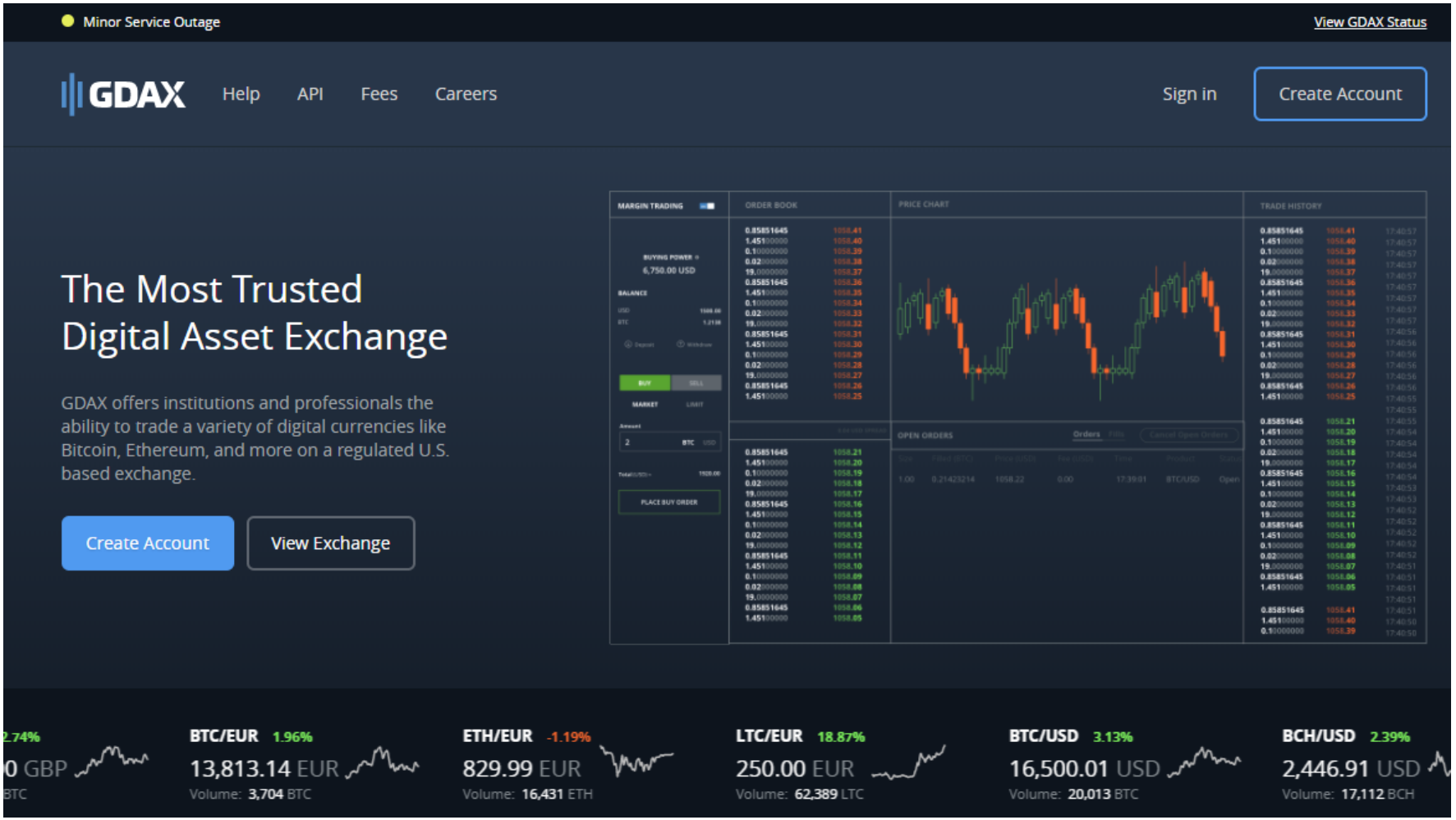


January 6, 2018

Coinbase, easy trusted trading



GDAX, use your Coinbase credentials



January 6, 2018

Dead Coins

- Over 400 and counting, Coins with Market cap of zero. Parody, Scams and failed projects
- deadcoins.com

Bitcoin

- The first cryptocurrency
- Proof of work
- SHA256
- Max coins 21m
- Market cap > $252B
- Block time 10 mins

Bitcoin cash

- 8MB block size (8x bitcoin size)
- Proof of work
- SHA256
- Max coins 21m
- Market cap $23B
- Block time 10 min

Litecoin

- Script algorithm, in attempt to mitigate against ASIC mining.
- Max Coins 84m
- Market Cap $5.3B
- Block time 2.5 mins

Monero

- Algorithm CryptoNight, uses ring signatures.
- Max coins Infinite
- Block time 2 mins
- Market Cap $4.5B

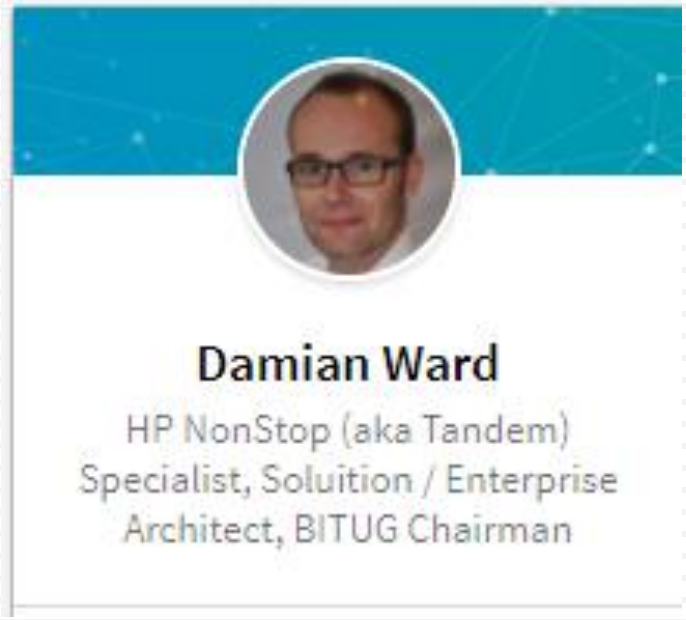
Ripple

- Forex based coin
- Recently leveraged by American Express
- Max coins 99B
- Market Cap $8.8B
- Blocktime 3.5s

Stellar lumens

- Developing economy coin
- Initially remittances and now currency exchange
- Recently leveraged by IBM (British pounds and Fijian dollars) 7 more currencies in roadmap.
- Max coins 103B XLM
- Market Cap $2.8B
- Block time < 10s

STELLAR

Thankyou… Questions…

Find me on Linkedin