

What is Cryptocurrency And What It Means to a City

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What is Bitcoin?

- An open source online payment system developed by Satoshi Nakamoto in 2008, and introduced in 2009.
- A public ledger of payments between anonymous addresses using its own unit of account (Bitcoin).
- Public ledger is like a spreadsheet with a new set of entries approximately every 10 minutes that represent the most recent time-stamped transactions.
- Anybody can observe how much each semi-anonymous owner has, and what has been

What is it based on?

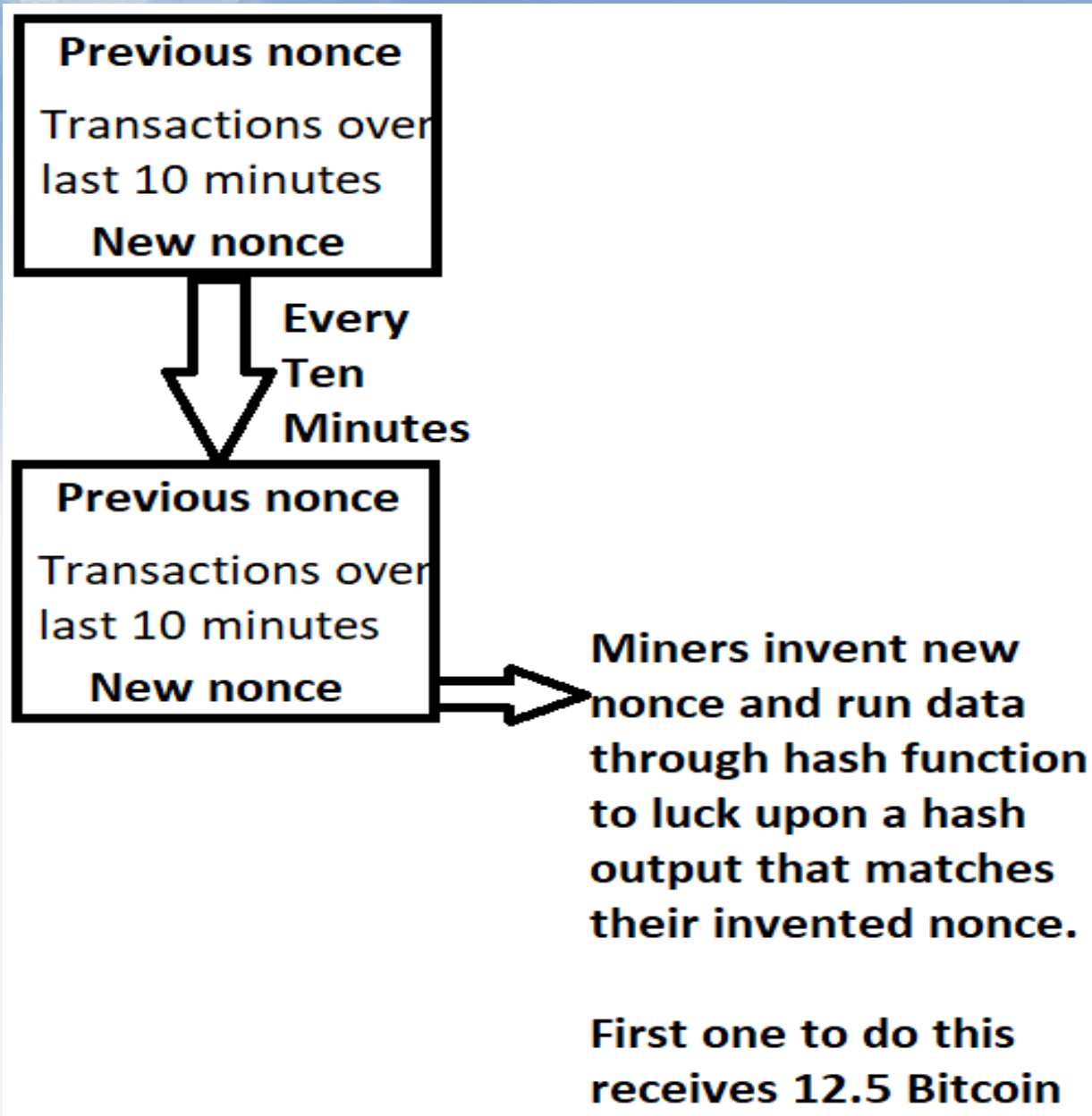
- The cryptocurrency system is maintained by an open-source network that follows the Bitcoin protocol
- Mathematics and encryption ensures that coins can't be duplicated or double spent without investing a great cost well in excess of the value of tampering.
- Unlike other currencies, this monetary unit has advantages:
 1. It is decentralized and a majority consensus is required before a series of transactions are finalized.
 2. It is fast, simple, anonymous, transparent, and has low transaction costs.
 3. Transactions are irreversible

- Bitcoins are stored in secure wallets identified by a unique address.
- Part of the wallet is public, the account number, but a private key is required to transfer Bitcoin out of the wallet.
- Bitcoin is transferred when the next owner issues a public key and previous owner invokes a private key that allows publishing the transaction into the ledger.
- Bitcoin protocol stores details of every transaction in the network, recorded in a

How are Bitcoins created - Mining process

- Miners use special software to solve math problems (Bitcoin algorithm), and, upon completing the task, they receive some coin.
- Currently, a winning solution earns 12.5 BTC.
- “Discovering” a new block requires creating and inserting a random number called a “nonce” (number used once) such that, when processed by a hash function, a number sufficiently close to the nonce is generated





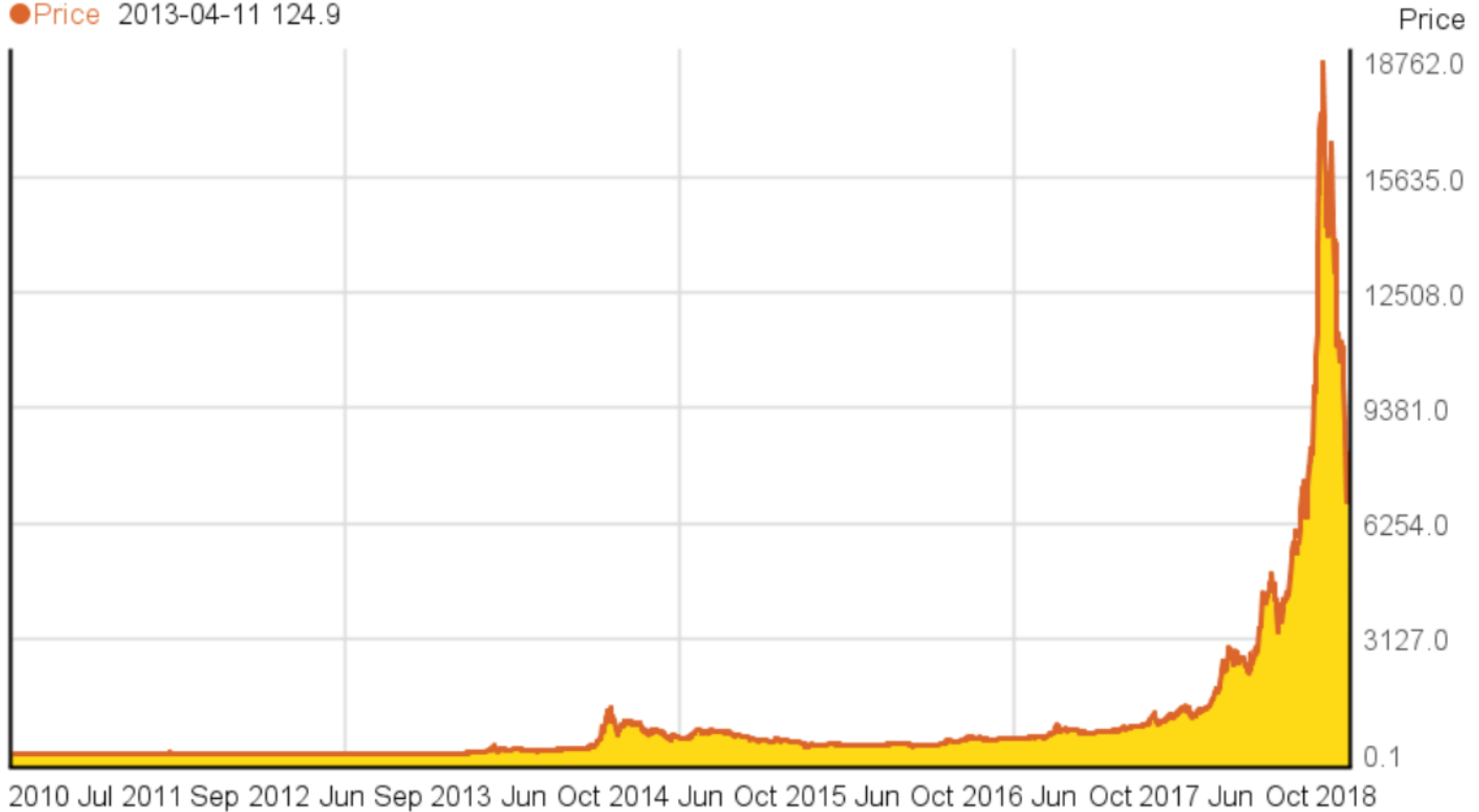
How can one obtain Bitcoins?

1. Earn Bitcoins from mining
 2. Earn Bitcoins by accepting them as a means of payment
 3. Earn Bitcoin through trading and speculation
 4. Earn Bitcoins as payroll income that is difficult to track.
 3. Earn Bitcoin from interest payments
 4. Earn Bitcoin in the underground economy (donations, gambling, getting tipped, completing tasks on websites...)
- These Bitcoin retain their scarcity and value because, at the rate of mining, total production peaks at 21 million coin more than a century from now.

Bitcoin prices have soared as it became the global pioneer in virtual currency field.

■ BTCUSD

● Price 2013-04-11 124.9



6/5/2018

Why price of Bitcoin soared and why has it become the world pioneer in the virtual currency field?

Historically, gold is the best known monetary commodity because the quantity is limited and can only be produced at a significant cost.

- In this sense, Bitcoin is similar to gold (except there is no intrinsic value). It is a cleverly designed financial product with finite quantity.
- Newer block-chain cryptocurrencies are more intricate and can record all kinds of contracting provisions rather than just the value exchanged. This innovation is destined to ensure that cryptocurrency is here to stay.
- Bitcoin is prone to Denial of Service, Trojan attacks, a 51% domination hijacking, and other security risks.

The Cost of Cryptocurrency

- the energy cost of “mining” is what makes counterfeiting and tampering prohibitively costly.
- One estimate states more than 1% of world’s electrical energy is devoted to mining, which is more electric energy consumed in any but the world’s eighteen largest energy consuming nations.
- There are millions of specialized machines running worldwide, each about the size of a shoebox and the energy consumption and heat production of a typical spaceheater.



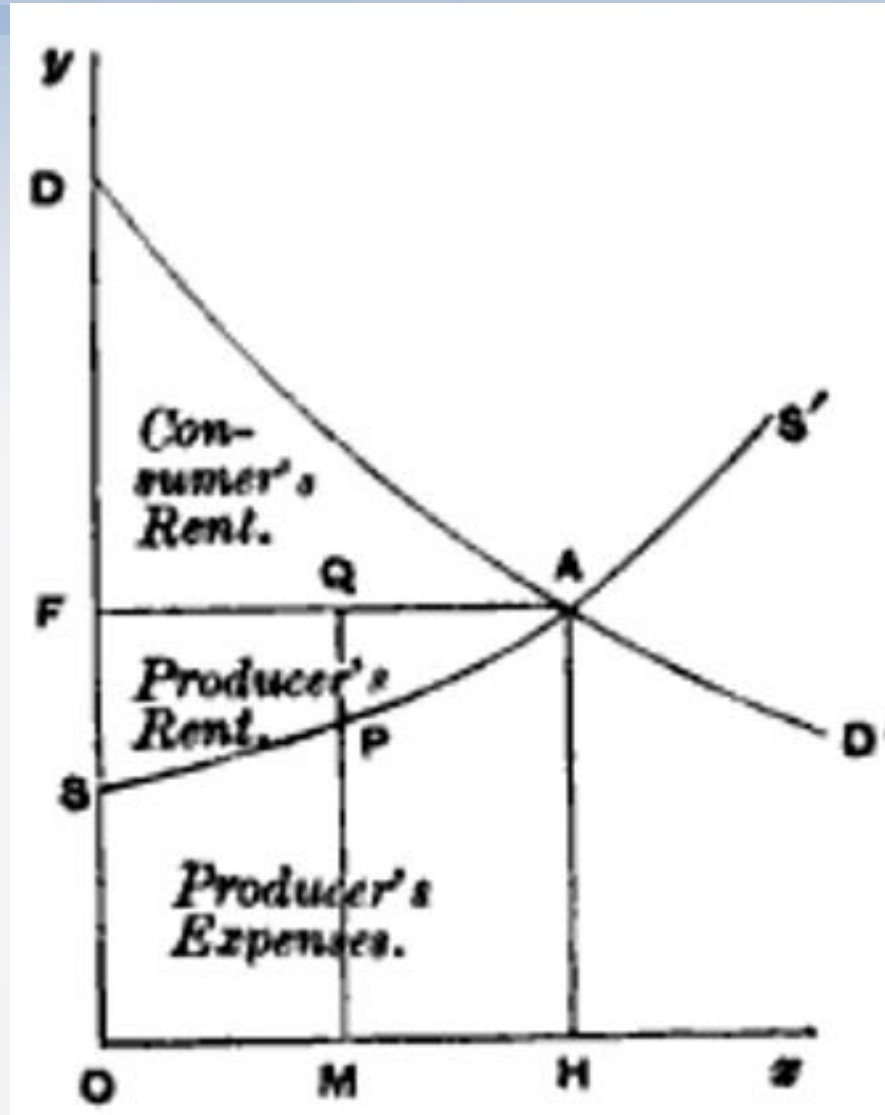
Public Policy Concerns

- Intense heat generation in highly concentrated spaces that are not properly designed.
- Fire hazards best addressed with appropriate non-water based suppression to protect firefighters. Metal structures and external cutoff switches also reduce risk to firefighters.
- Noise levels of about 75db per miner, 105 db for 1,000 machines, 115db for 10,000 miners.

Economic and Environmental Issues

- The cryptocurrency industry transforms energy into income more profitably than perhaps any industry in history.
- Employee costs and job creation are insignificant.
- One kwh produces \$.20 of coin, for \$.0027 of electricity.
- Capital equipment is completely paid off within a year.
- Then reap profits as cheap energy is converted to high value
- At Plattsburgh electric rates, \$1 of electricity = \$7 of profit
- At national average rates, \$1 of electricity = \$1 to \$2 of profit
- Copious electricity and heat dissipation creates huge profits.

Textbook Reason Why Crypto's Here To Stay



The Economic Issue

- Plattsburgh is a quota city, with cheap but limited electricity quota, unlike Washington State or Quebec cities with somewhat higher costs but more supply.
- Plattsburgh can't consume more than 104 MW at any time. If it does, it must pay 7-8 times more for power.
- Before the recent PSC ruling, all ratepayers shared in the extra cost if we exceeded the quota.
- Before Bitcoin, ratepayers paid a surcharge when the temperature dropped below about 5 degrees. Lately, ratepayers pay if temperature drops below 20 degrees.
- Now, ratepayers are protected as industry pays overage.

Some Ideas for Solutions

- Building codes that protect firefighters and workers.
- Noise and nuisance codes that protect neighborhoods.
- Heat reclamation that protects the environment, warms gyms and warehouses, and ensures there's power to sell.
- An emphasis on sustainability in highly transient industry.
- A requirement investors cover their electric infrastructure.
- A grid that meets demand and maintains redundancy.
- A Gross Utilities Tax to require industry that leases space, hires few workers, and buys power from nonprofit electric companies to provide some local revenue to municipalities.
- Let's engineer micro crypto-heating to create the capacity to foster an industry and avoid environmental catastrophe.

Thank you



Questions?

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