

BLOCKCHAIN

e a rede Bitcoin



NETIMÓVEIS

1. Bitcoin | futuro ou presente?
2. Características, base monetária e mineração
3. História, legitimidade e valor intrínseco
4. Blockchain
5. Conceito
6. Como funciona
7. Outras aplicações | mercado imobiliário?
8. O que a Netimóveis já está fazendo.

Problema

Bitcoin: A Peer-to-Peer Electronic Cash System

Satoshi Nakamoto
satoshin@gmx.com
www.bitcoin.org

Abstract. A purely peer-to-peer version of electronic cash would allow online payments to be sent directly from one party to another without going through a financial institution. Digital signatures provide part of the solution, but the main benefits are lost if a trusted third party is still required to prevent double-spending. **We propose a solution to the double-spending problem using a peer-to-peer network.** The network timestamps transactions by hashing them into an ongoing chain of hash-based proof-of-work, forming a record that cannot be changed without redoing the proof-of-work. The longest chain not only serves as proof of the sequence of events witnessed, but proof that it came from the largest pool of CPU power. As long as a majority of CPU power is controlled by nodes that are not cooperating to attack the network, they'll generate the longest chain and outpace attackers. The network itself requires minimal structure. Messages are broadcast on a best effort basis, and nodes can leave and rejoin the network at will, accepting the longest proof-of-work chain as proof of what happened while they were gone.



R\$ 600 milhões
no Brasil

US\$ 90 bilhões
no mundo

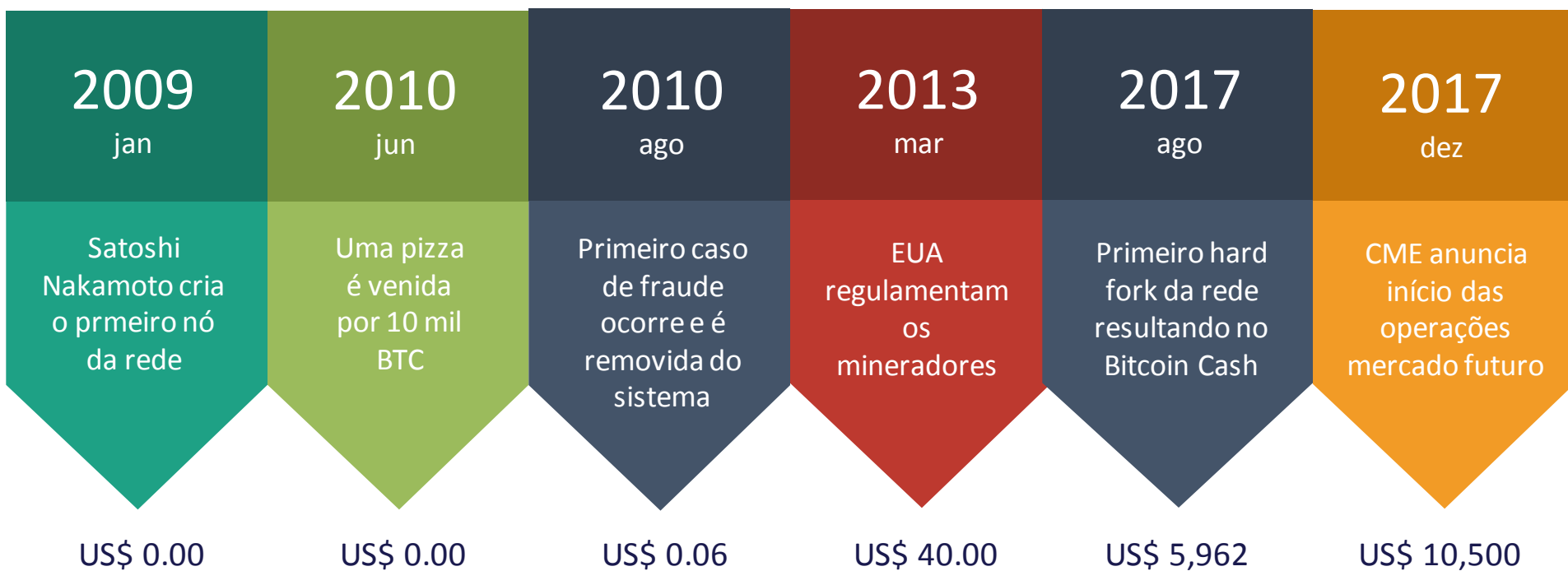
Volume negociado mensalmente



US\$ 165 bilhões
em circulação

Mercado global de ouro = US\$ 7 trilhões

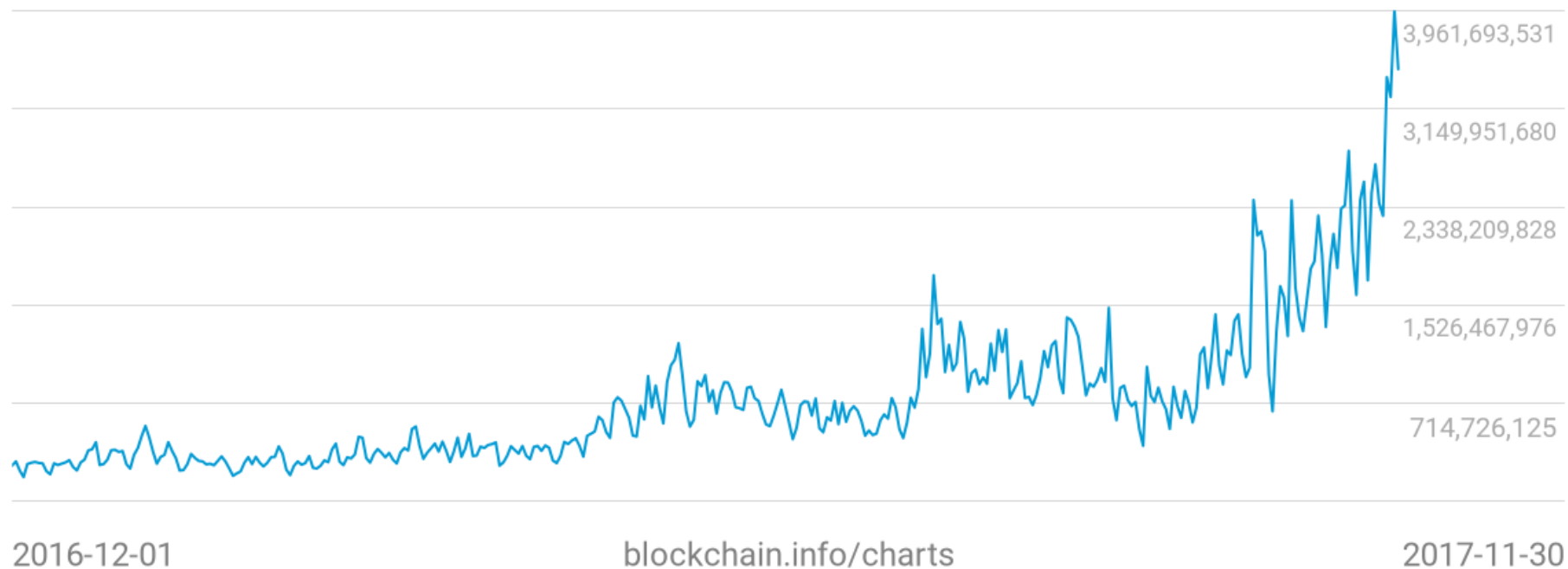
História e legitimidade



Outras tentativas (Digi Cash e e-Gold) já haviam ocorrido na década de 90 antes da publicação do paper do Satoshi Nakamoto em outubro de 1.998

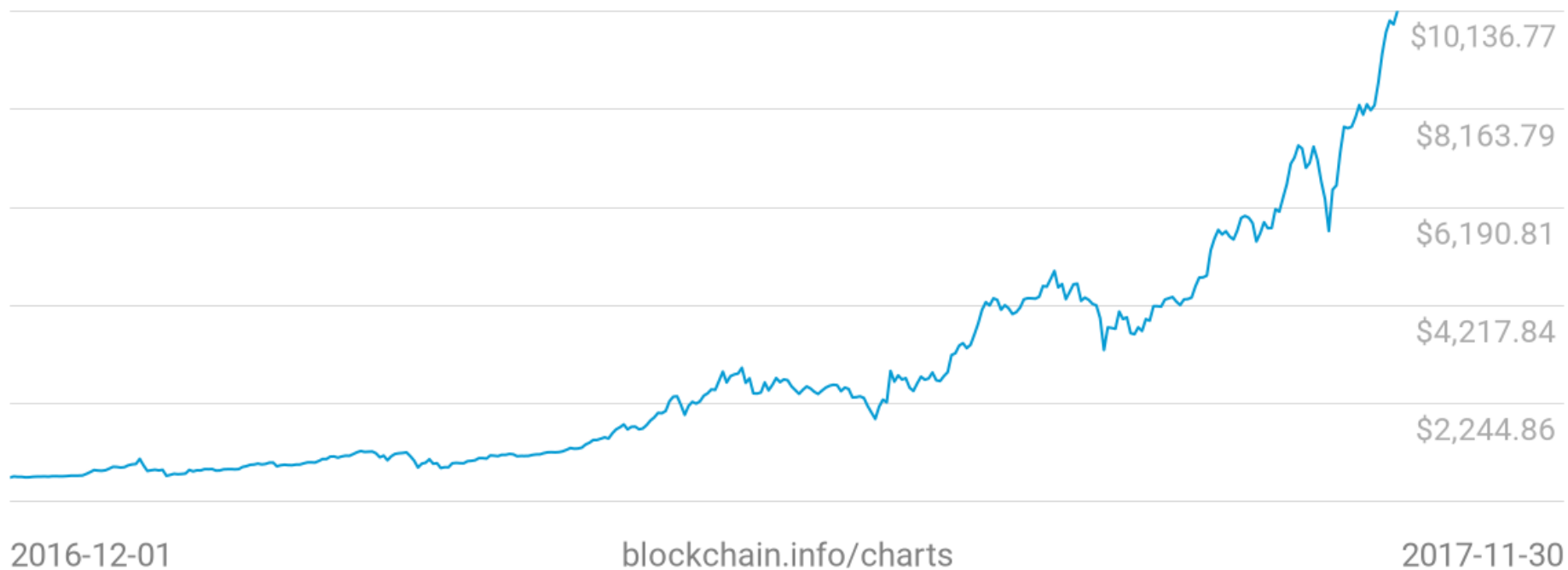
Volume Estimado de Transações em USD

3,480,444,824

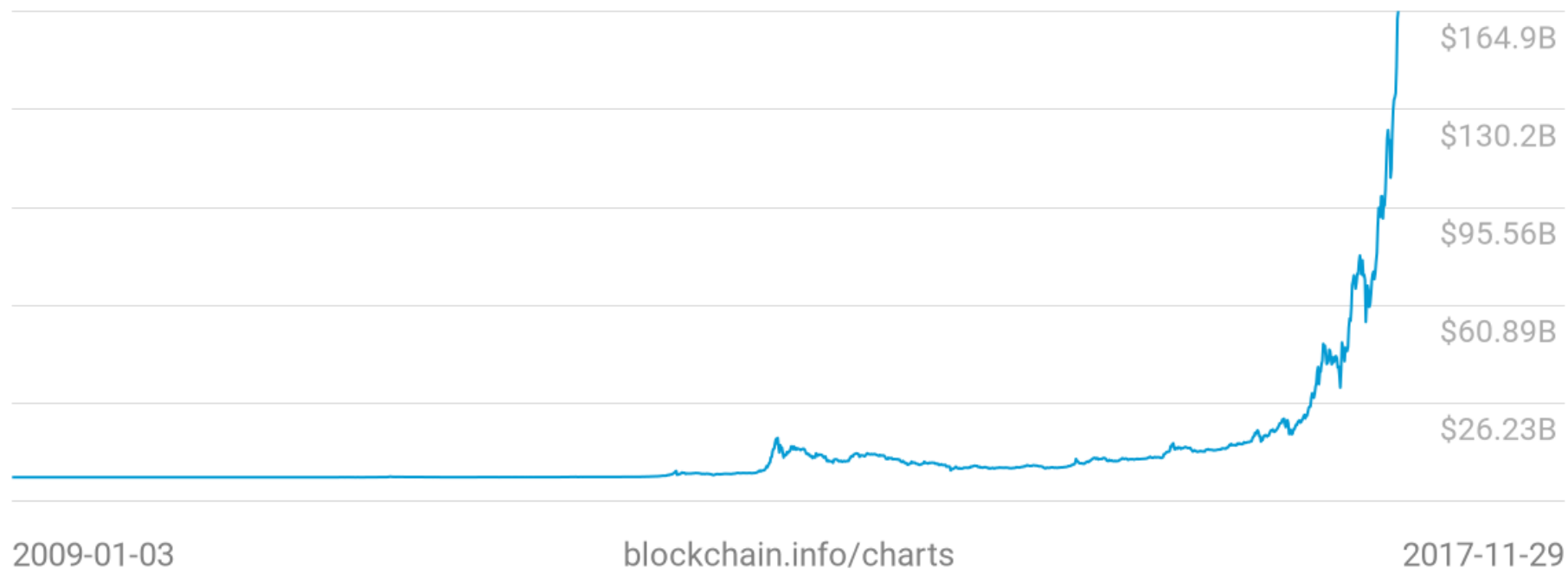


Preços do Mercado (USD)

\$10,147.37



Capitalização de mercado \$165.1B

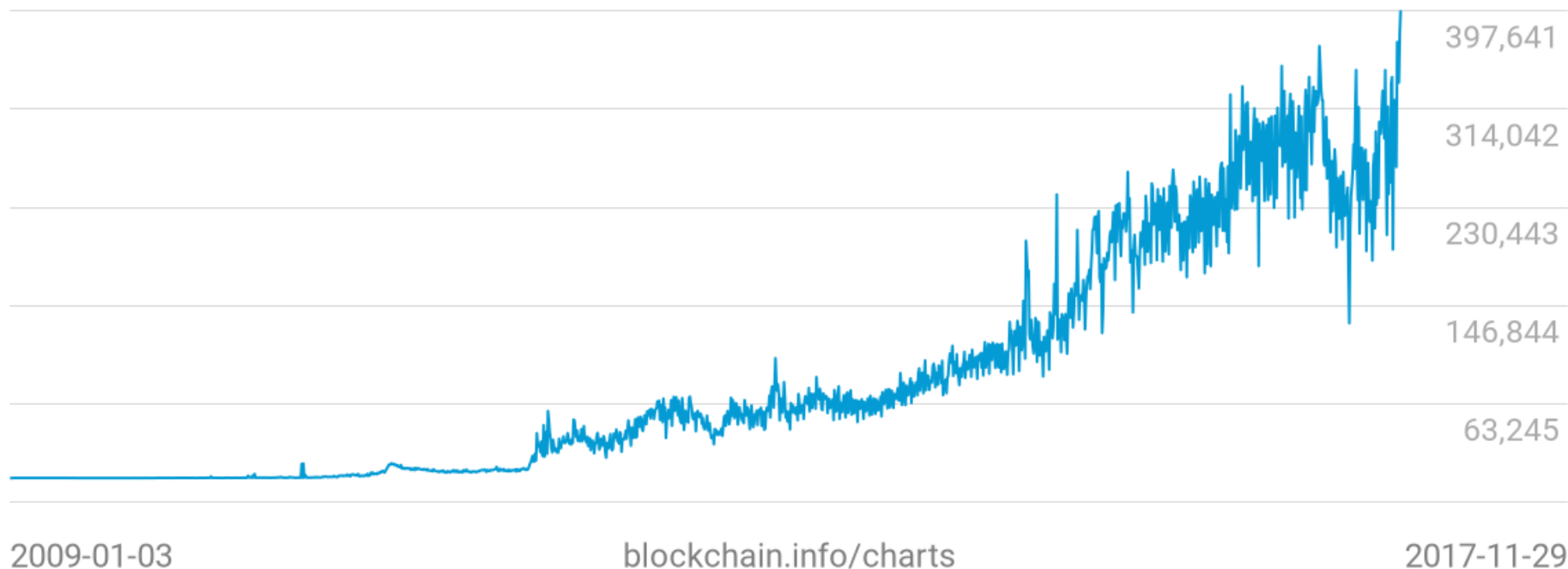


2009-01-03

blockchain.info/charts

2017-11-29

Número de Transações
398,090



25	<u>MEXICO</u>	\$186,800,000,000	31 DECEMBER 2016 EST.
26	<u>VENEZUELA</u>	\$163,300,000,000	31 DECEMBER 2016 EST.
27	<u>DENMARK</u>	\$159,300,000,000	31 DECEMBER 2016 EST.
28	<u>IRELAND</u>	\$156,200,000,000	31 DECEMBER 2016 EST.
29	<u>BITCOIN</u>	\$150,500,000,000	25 NOVEMBER 2017 EST.
30	<u>UNITED ARAB EMIRATES</u>	\$129,000,000,000	31 DECEMBER 2016 EST.
31	<u>FINLAND</u>	\$124,000,000,000	31 DECEMBER 2016 EST.
32	<u>SINGAPORE</u>	\$119,400,000,000	31 DECEMBER 2016 EST.

M1 = moeda em poder do público (papel-moeda e moeda metálica) + depósitos à vista nos bancos comerciais.
 M1 é o total de moeda que não rende [juros](#) e é de liquidez imediata

The red flag act of 1865 | Reino Unido

Todo veículo tinha que circular com um engenheiro, um motorista e um homem com uma bandeira sinalizando a sua circulação limitando a sua velocidade a 3.2 km por hora.



2017



1/4



1/2

Japão regulamenta o uso do Bitcoin como meio de pagamento.

4.500 lojas já aceitam o Bitcoin

Após o fechamento da Mt. Gox em 2014, o Governo Japonês impôs algumas regulamentações como capital mínimo para as exchanges e contas segregadas para os clientes.

Reputação questionada com toda polêmica acerca do novo protocolo Segwit2x (Bitcoin Gold)





2.7K



852

News Release

CME Group Announces Launch of Bitcoin Futures

Tue Oct 31 2017

CHICAGO, Oct. 31, 2017 /PRNewswire/ -- [CME Group](#), the world's leading and most diverse derivatives marketplace, today announced it intends to launch bitcoin futures in the fourth quarter of 2017, pending all relevant regulatory review periods.

The new contract will be cash-settled, based on the [CME CF Bitcoin Reference Rate \(BRR\)](#) which serves as a once-a-day reference rate of the U.S. dollar price of bitcoin. Bitcoin futures will be listed on and subject to the rules of CME.

"Given increasing client interest in the evolving cryptocurrency markets, we have decided to introduce a bitcoin futures contract," said Terry Duffy, CME Group Chairman and Chief Executive Officer. "As the world's largest regulated FX marketplace, CME Group is the natural home for this new vehicle that will provide investors with transparency, price discovery and risk transfer capabilities."

Since November 2016, CME Group and [Crypto Facilities Ltd.](#) have calculated and published the BRR, which aggregates the trade flow of major bitcoin spot exchanges during a calculation window into the U.S. Dollar price of one bitcoin as of 4:00 p.m. London time. The BRR is designed around the IOSCO Principles for Financial Benchmarks. Bitstamp, GDAX, iBit and Kraken are the constituent exchanges that currently contribute the pricing data for calculating the BRR.

"We are excited to work with CME Group on this product and see the BRR used as the settlement mechanism of this important product," said Dr.Timo Schlaefler, CEO of Crypto Facilities. "The BRR has proven to reliably and transparently reflect global bitcoin-dollar trading and has become the price reference of choice for financial institutions, trading firms and data providers worldwide."

CME Group and Crypto Facilities Ltd. also publish the [CME CF Bitcoin Real Time Index \(BRTI\)](#) to provide price transparency to the spot bitcoin market. The BRTI combines global demand to buy and sell bitcoin into a consolidated order book and reflects the fair, instantaneous U.S. dollar price of bitcoin in a spot price. The BRTI is published in real time and is suitable for marking portfolios, executing intra-day bitcoin transactions and risk management.

Cryptocurrency market capitalization has grown in recent years to \$172 billion, with bitcoin representing more than 54 percent of that total, or \$94 billion. The bitcoin spot market has also grown to trade roughly \$1.5 billion in notional value each day.

Corporate Communications



+1 312 930 3434



Email

Cmegroup.com

CME | Chicago Mercantile Exchange anuncia que vai operar contratos futuros de bitcoin até dezembro de 2017,





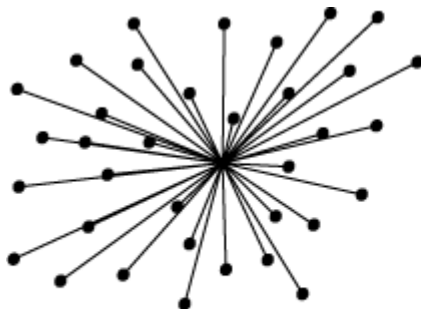
BLOCKCHAIN

Conceito

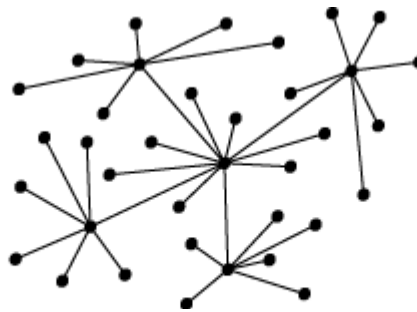
O blockchain do bitcoin é um conjunto de algoritmos abertos e de livre acesso que, por meio da internet, estabelece uma rede global e descentralizada de notarização de transações. Esse processo ocorre de forma transparente, contínua e auto auditável, **estabelecendo um consenso de que colaborar é mais lucrativo que trapacear.**

- .: Livre ingresso – qualquer um pode participar, seja na periferia ou minerando
- .: Anonimato – não há cadastro de dados pessoais
- .: Não há um dono, chefe ou coordenador das decisões
- .: É uma rede distribuída onde todos garantem a credibilidade das transações
- .: Base monetária de 21 milhões de bitcoins | Base monetária brasileira – M1 = R\$ 260 bilhões
divisível até 8 casas decimais

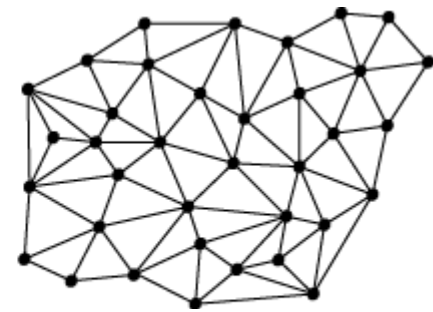
BLOCKCHAIN



Centralizada

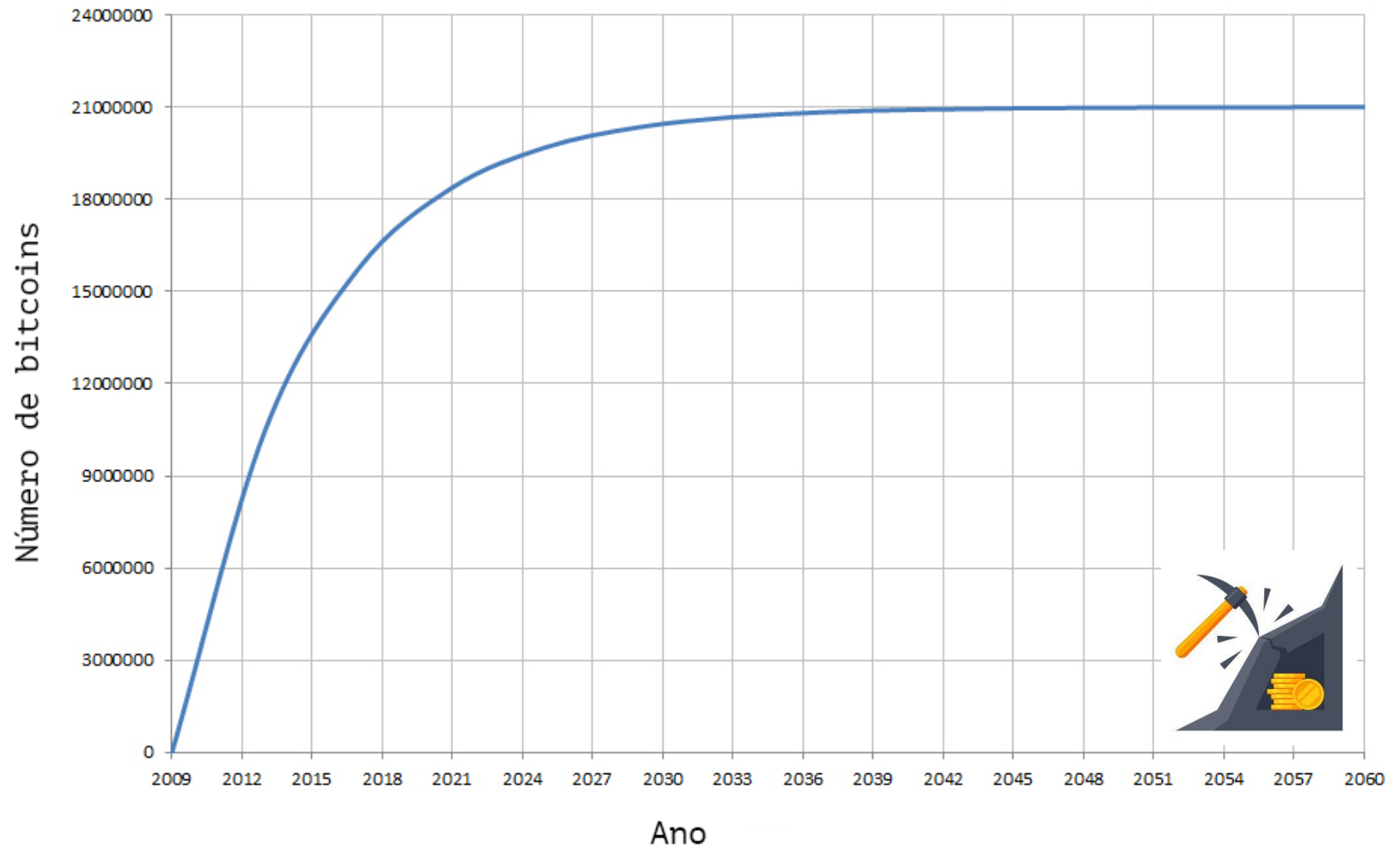


Descentralizada



Distribuída

Oferta de bitcoins ao longo do tempo



Uma função **hash** é um algoritmo que mapeia dados de comprimento variável para dados de comprimento fixo. SHA-2 (Secure Hash Algorithm 2 - NSA)



530.752.046-84 ← Código hash

Mensagem

Margem de erro de 1%



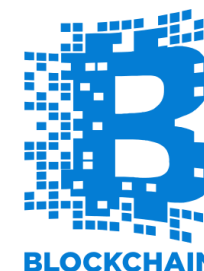
Na rede bitcoin adota-se o hash com mais de 60 dígitos de comprimento, o que leva a **margem de erro** (duplicatas) a **praticamente zero**.

```
1. {"hash":"7c4025...", Hash anterior
2. "ver":1, Versão 1 do protocolo do bitcoin
3. "vin_sz":1, Indica que a transação tem apenas 1 input
4. "vout_sz":1, Indica que a transação tem apenas 1 output
5. "lock_time":0, Indica o tempo gasto para finalizar a transação
6. "size":224, Tamanho em bytes da transação
7. "in":[
8.   {"prev_out":
9.     {"hash":"2007ae...",
10.    "n":0}, Informa que é a primeira saída dessa transação
11.   "scriptSig":"304502... 042b2d..."}], Informa a assinatura de quem está enviando,
    espaço e depois a sua chave pública
12. "out":[
13.   {"value":"0.31900000", Informa quantos bitcoins estão sendo transferidos
14.   "scriptPubKey":"OP_DUP OP_HASH160 a7db6f OP_EQUALVERIFY OP_CHECKSIG"]}]
    Informa o endereço do receptor
```

0	De referência a uma transação anterior	Para destinatário	Valor quantidade de BTC
Teto	- Ninguém	1SatoshiNakamoto	50
Hash		189.273.255 ...	600.243.584 ... até 77 dígitos
Nonce ou contador		0	
Hash anterior		000.000 ...	

∴ Transação gênese (sem referência a um bloco anterior)

∴ O hash tem que ser inferior ao valor do teto



0	De referência a uma transação anterior	Para destinatário	Valor quantidade de BTC
	- Ninguém	1SatoshiNakamoto	50
Teto		189.273.255 ...	
Hash		175.546.852 ... até 77 dígitos	
Nonce ou contador		15	
Hash anterior		000.000 ...	

Bloco 01

Conteúdo

Hash 0

Bloco 02

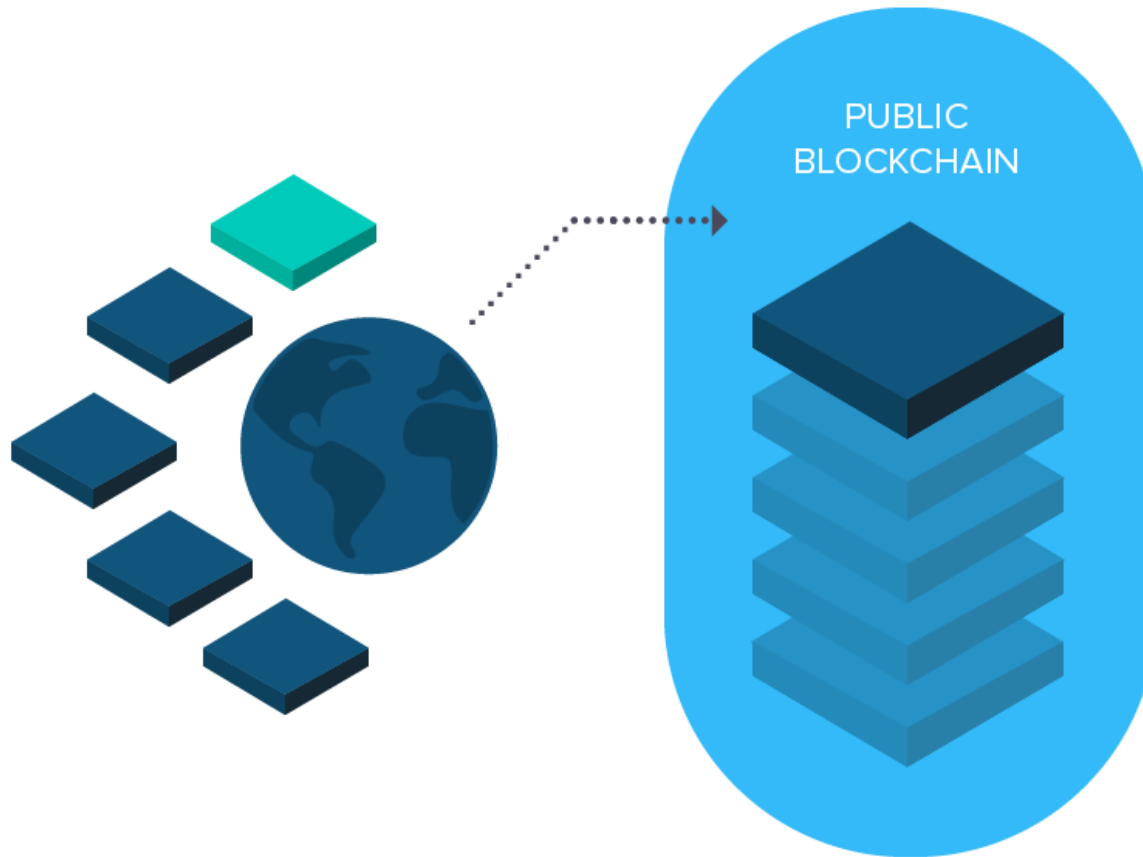
Conteúdo
+
Hash 0

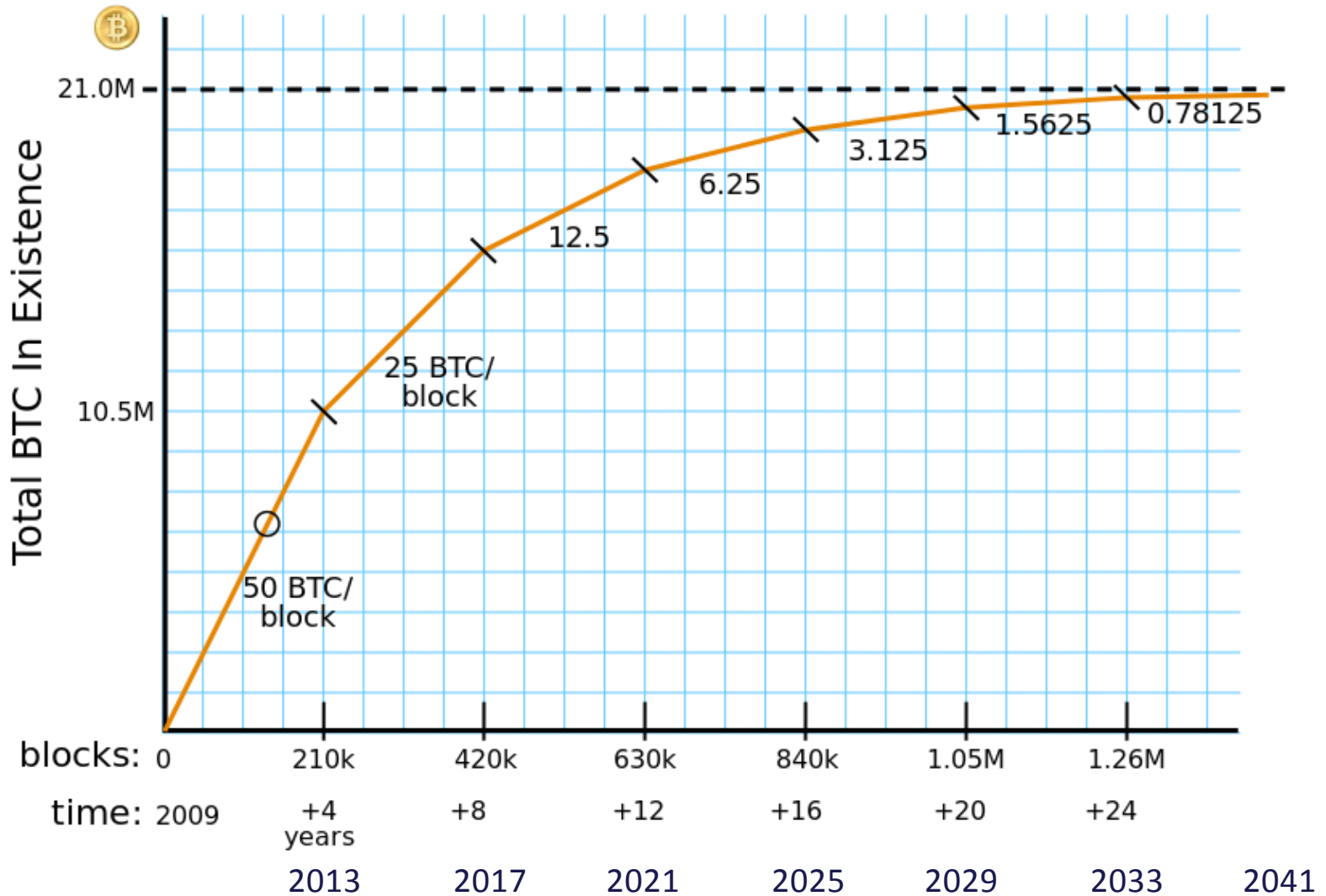
Hash 1

Bloco 03

Conteúdo
+
Hash 1

Hash 2

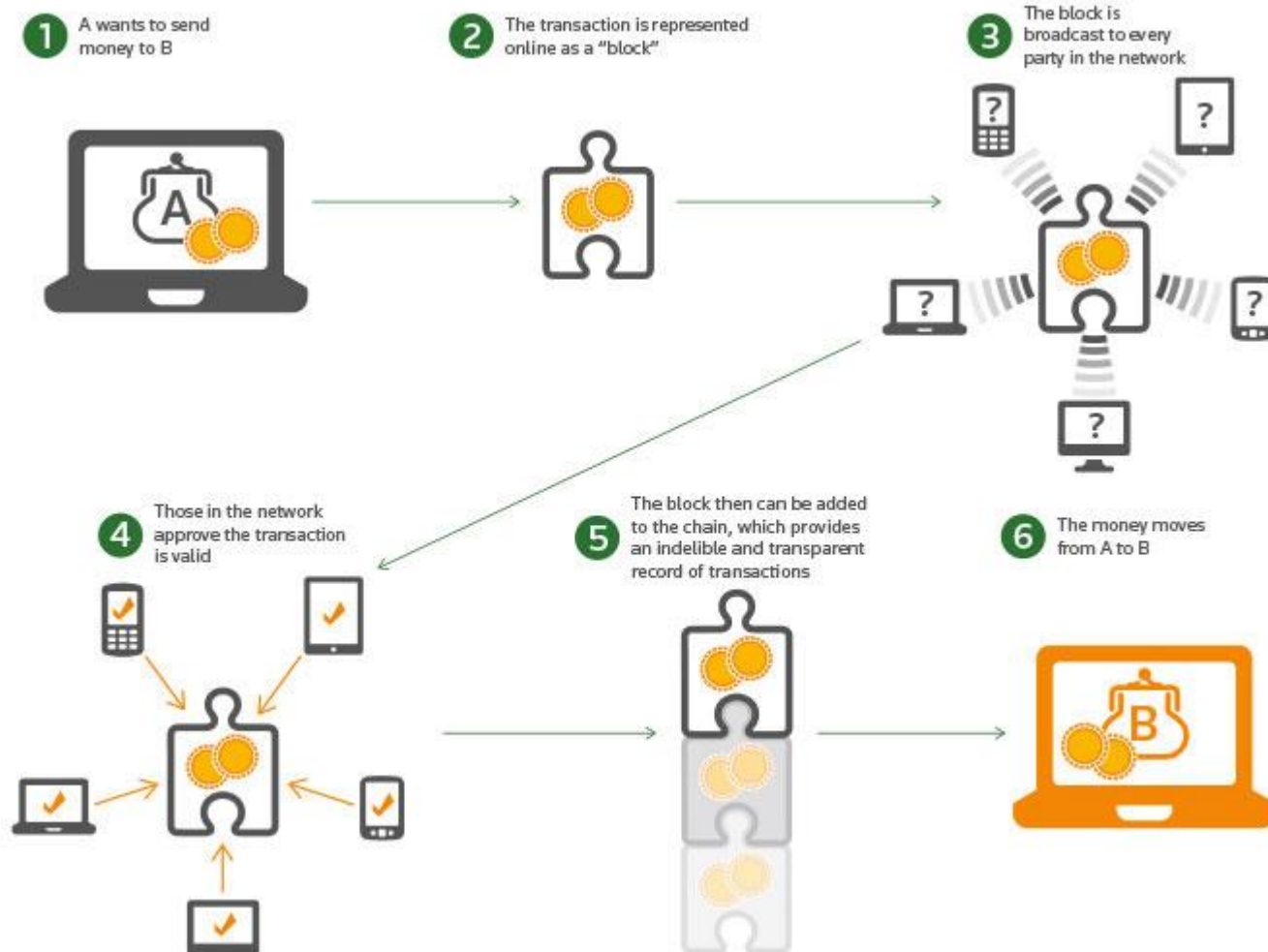






Source: <https://powercompare.co.uk/bitcoin/>

Mineração de Bitcoin já consome mais energia do que 159 países juntos – 29,5 terawatt-hora representando 0,13% do consumo total do planeta.

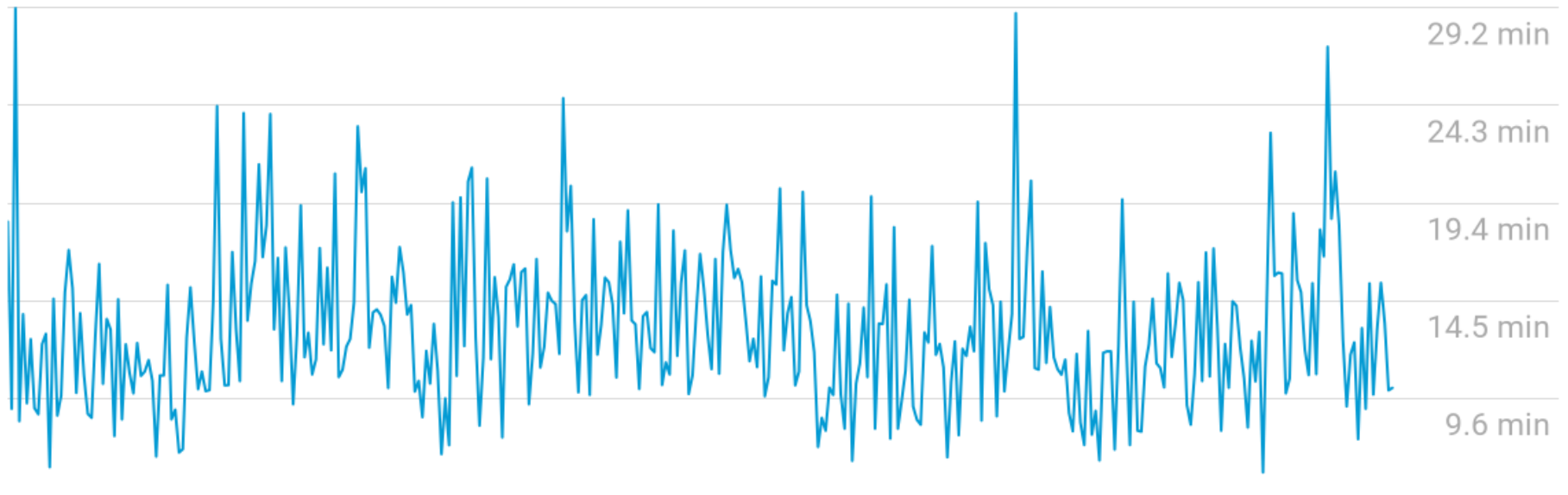


Os nós recebem as transações e blocos, armazenam e repassam somente os válidos e ignoram os inválidos.



Median Confirmation Time

10.1 min



2016-11-30

blockchain.info/charts

2017-11-29

Só é possível calcular uma média,
depois de conhecer os extremos.

Outras aplicações

É possível calcular o hash de uma foto, de uma música,
de um documento ou de um imóvel...
A tecnologia do blockchain pode ter infinitas aplicações.



HYPERLEDGER



IBREA

INTERNATIONAL BLOCKCHAIN REAL ESTATE ASSN.

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The **International Blockchain Real Estate Association (IBREA)** is a member-focused advocacy, educational, and trade organization dedicated to implementing blockchain in real estate. Blockchain offers an open source, universal protocol for property buying, conveyancing, recording, escrow, crowdfunding, and more. It can reduce costs, stamp out fraud, speed up transactions, increase financial privacy, internationalize markets, **and make real estate a liquid asset.**

Articles



Real estate project in Dubai to be the 'first major development where you can purchase in bitcoin'

British entrepreneurs Michelle Mone and Doug Barrowman have launched a bitcoin-priced real estate development in Dubai. The project spans more than 2.4 million square feet. An initial tranche of 150 apartments will be sold in bitcoin in a world-first. Studio apartments will be sold initially at a starting price of 30 BTC — worth \$133,918.

[Read More →](#)



London developer to allow rental tenants to pay deposits in bitcoin

Co-living pioneer The Collective has announced that prospective tenants can pay deposits from Monday in bitcoin. By the end of this year it will also accept rent payments in the cryptocurrency. This is the first time in the UK a major property developer has enabled bitcoin payments. The Collective said it was in response to demand predominantly from international customers.

[Read More →](#)



Podcast - Blockchain for Real Estate 101

Answers the simple and the more complex questions about what blockchain really means for real estate, how it can be utilized, what you should look out for when choosing whom to work with, why bitcoin is better than Ethereum and much, much more. Listen: [Estates Gazette TechTalk](#).

[Read More →](#)



Will Blockchain Ignite Fractional Ownership Market For Homes?

The real estate industry has always been slow to adopt new technologies, however, it is becoming more open to the idea that blockchain has the potential to transform the way we buy and sell real estate by lowering hidden costs, expedite the process, reduce frauds and increase transparency.

[Read More →](#)



Permissionless Real Estate Title Transfers on the Bitcoin Blockchain in the USA!

Can you legally transfer ownership of real estate on the bitcoin blockchain? Can a blockchain real estate title transfer be recorded in the government public records? Can you do both without needing special permission or partnership with the county government?

The answers are yes, yes, and yes.

[Read More →](#)



Best Principals and Practices for Using Blockchain for Real Estate Title

Using blockchain for real estate title is an exciting focus for many companies, entrepreneurs, investors, and even governments. Because I see mistakes being made in these efforts, I will share my best principles and practices for blockchain title applications.

[Read More →](#)



Will blockchain and smart contracts revolutionise the real estate industry?

But the situation may be about to change as a new wave of fintech start-ups around the world begin disrupting the sector with blockchain (or distributed ledger) technology.

It has the potential to bring together the vast amount of property information currently stored in many private and government databases, including all legal and transaction history, via a single digital address stored on an immutable, public distributed ledger.

[Read More →](#)



Lend Academy - Potential Applications of Blockchain For Real Estate

Last week I spent the week at MIPIM, the largest conference in world dedicated to real estate. What's most interesting to me is how companies are applying technology to real estate and one of the big opportunities is bringing blockchain technology to real estate.

[Read More →](#)



The Blockchain Will Do to the Financial System What the Internet Did to Media

Instead of writing rules and appointing a regulator to monitor for breaches, which is how the current financial system works, Bitcoin's code sets the rules and the network checks for compliance. If a transaction breaks the rules (for example, if the digital signatures don't tally), it is rejected by the network.

[Read More →](#)



Real Estate Buyer Makes \$1.3 Million Buying Home With Bitcoin

A real estate buyer in California profited nearly \$1.3 mln after purchasing \$4 mln worth of Bitcoin with an intent to purchase a house in California.

Earlier this month, BitPay chief commercial officer (CCO) Sonny Singh was approached by a real estate buyer based in California who wished to purchase a \$4 mln house solely using Bitcoin.

[Read More →](#)

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Financial Management Rating Bonds Asset-Backed Securities CP Programs

Successful utilization of blockchain Joint pilot project of Daimler and LBBW



INTRODUCING

REX

GLOBALLY THE GLOBAL EFFICIENT

REAL ESTATE REVOLUTION

Connecting vendors, buyers and agents over a fast, flexible and free global listing network.



Rexmls.com

Proposta de desintermediação do mercado conectando proprietários e compradores diretamente, “premiando” com tokens quem incrementar a lista de imóveis. Usa plataforma do Ethereum



Administradoras de condomínios

Convenção de condomínio, regulamento, contabilidade, cobrança e etc

Administradoras de imóveis

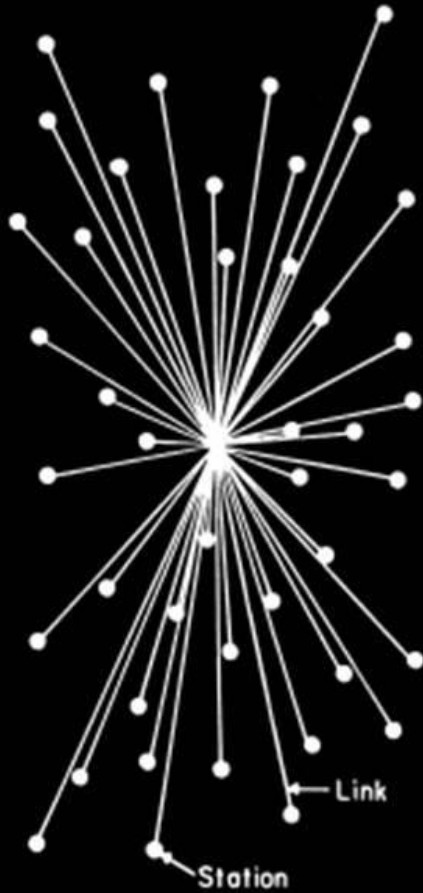
Contratos inteligentes de locação, seguros, garantias

Incorporadoras e loteadoras

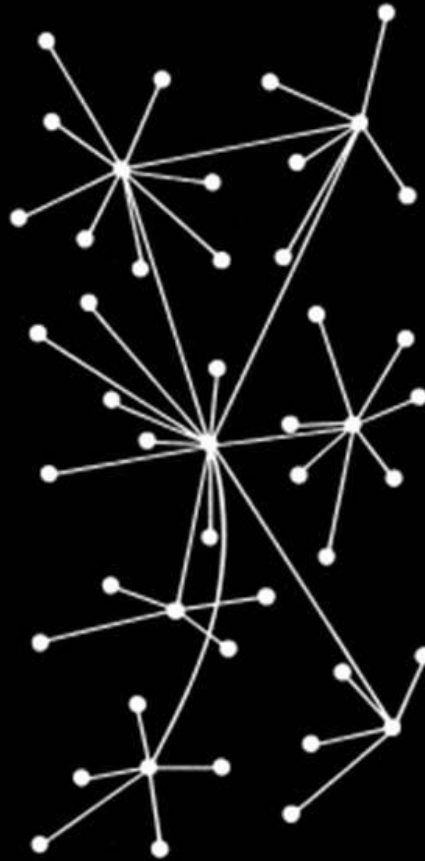
Blockchain para captação de recursos, obras por administração, fornecedores

Corretoras de imóveis

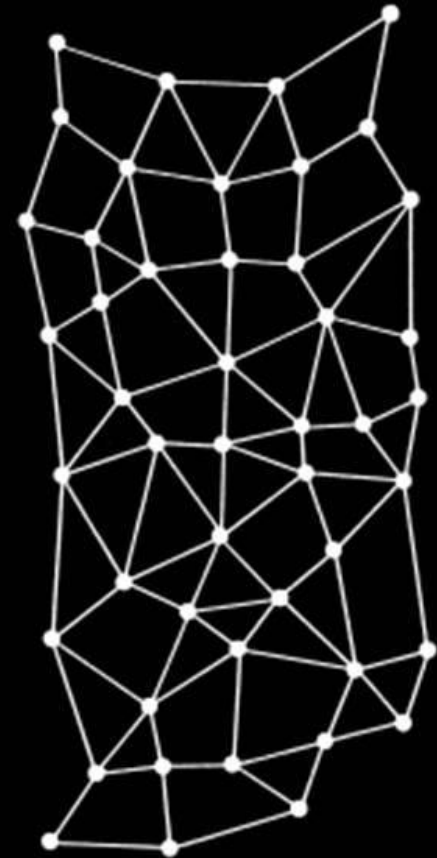
Contratos inteligentes, sistemas de vendas integradas, BrokerChain.



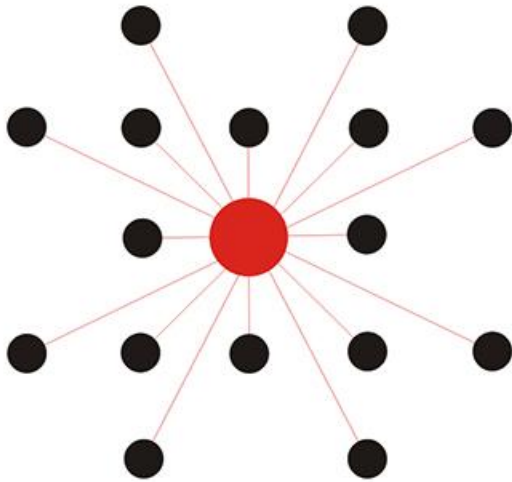
CENTRALIZADO



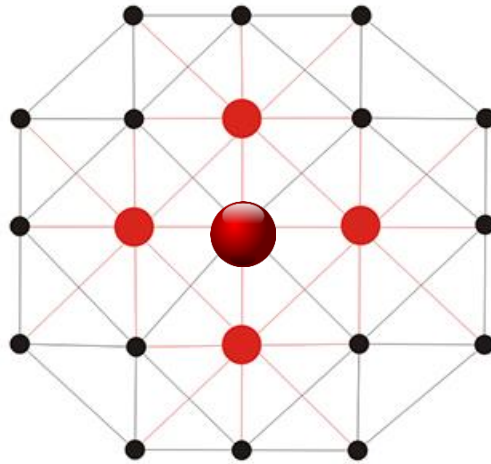
DESCENTRALIZADO



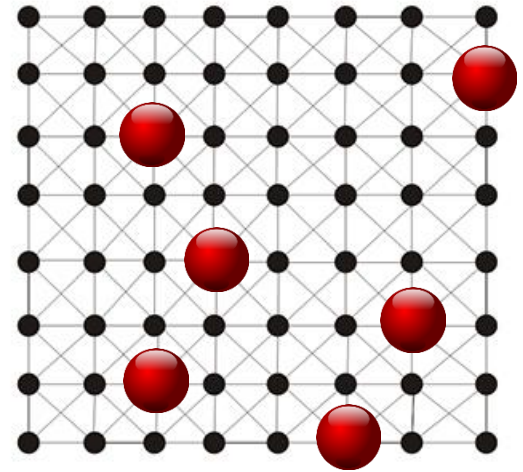
DISTRIBUÍDO



Centralizada



Descentralizada



Distribuída



BROKERCHAIN

The blockchain and us

<https://youtu.be/2iF73cybTBs>

How the blockchain is changing money and business | Don Tapscott

<https://youtu.be/Pl8OIkqwRpc>

"Banco ou Bitcoin" na Netflix

<https://www.netflix.com/title/80154500?s=i&trkid=13752289>



RECOMENDO

NETIMÓVEIS

Mais que uma rede, uma filosofia de trabalho.

Apresentação disponível em:

ariano.com.br