Threats and security of cryptocurrencies

A story told short

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Blockchain and it's applications

Agenda

1. Threats of cryptocurrency market
2. Future threats
3. Cryptocurrency in crime
4. Frauds & Scams
5. Anonymity & privacy
6. Security layers of crypto

Threats of cryptocurrency market

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Example

GHash.IO bitcoin mining pool exceeded 51% pool threshold in July 2014.

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Keeping backup of your keys, encrypting them, splitting monies into multiple wallets

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Currently banned in

Algeria, Egypt, Morocco, Canada(banking), Bolivia, Columbia, Ecuador, Saudi Arabia, Iran, Bangladesh, India(banking), Nepal, Pakistan, China, Taiwan, Cambodia, Indonesia, Thailand(banking), Vietnam.

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  - the software needs to be regularly updated and suspect at times

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Example

After about year and a half Steam ended support for bitcoin payments because of 'hight fees and volatility' of a bitcoin.

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  - with electricity production costs rising and banning crypto mining in electricity-cheap countries (like China), mining may be unprofitable

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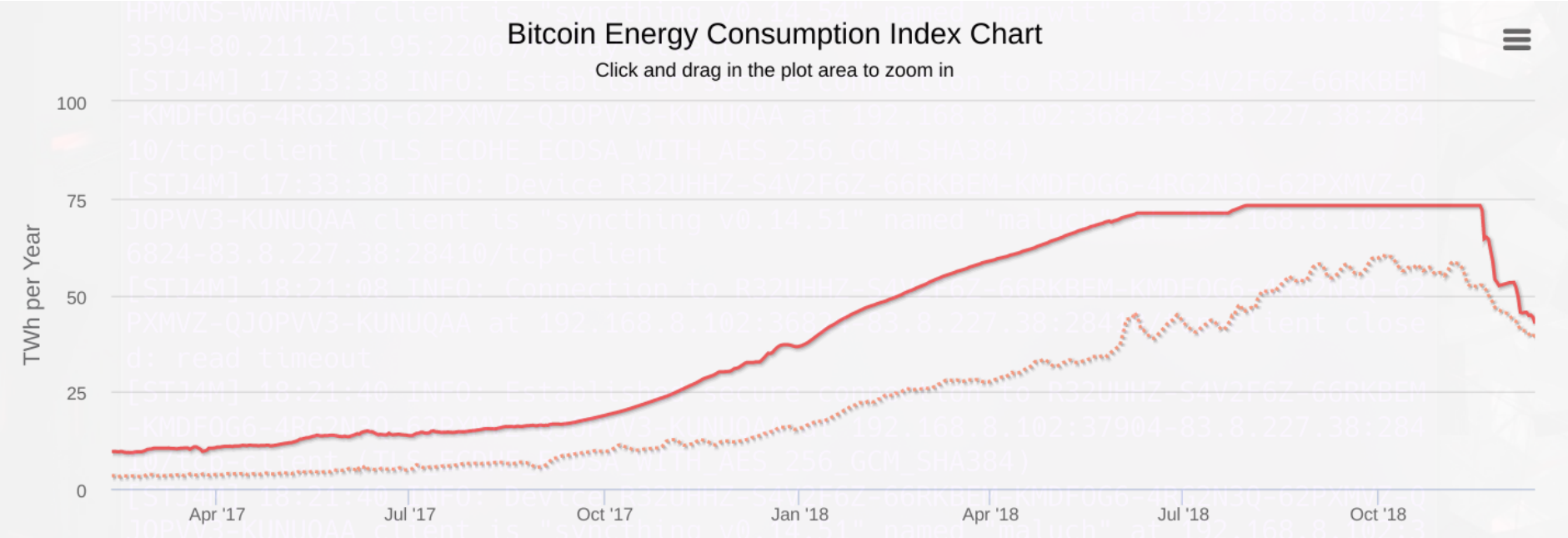

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  - 'quantum safe cryptography' is the only hope
  - some crypto claims to be 'quantum-safe' (NEO)

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  - includes drops even by 80%(September 2018, MVIS, top 10 crypto)

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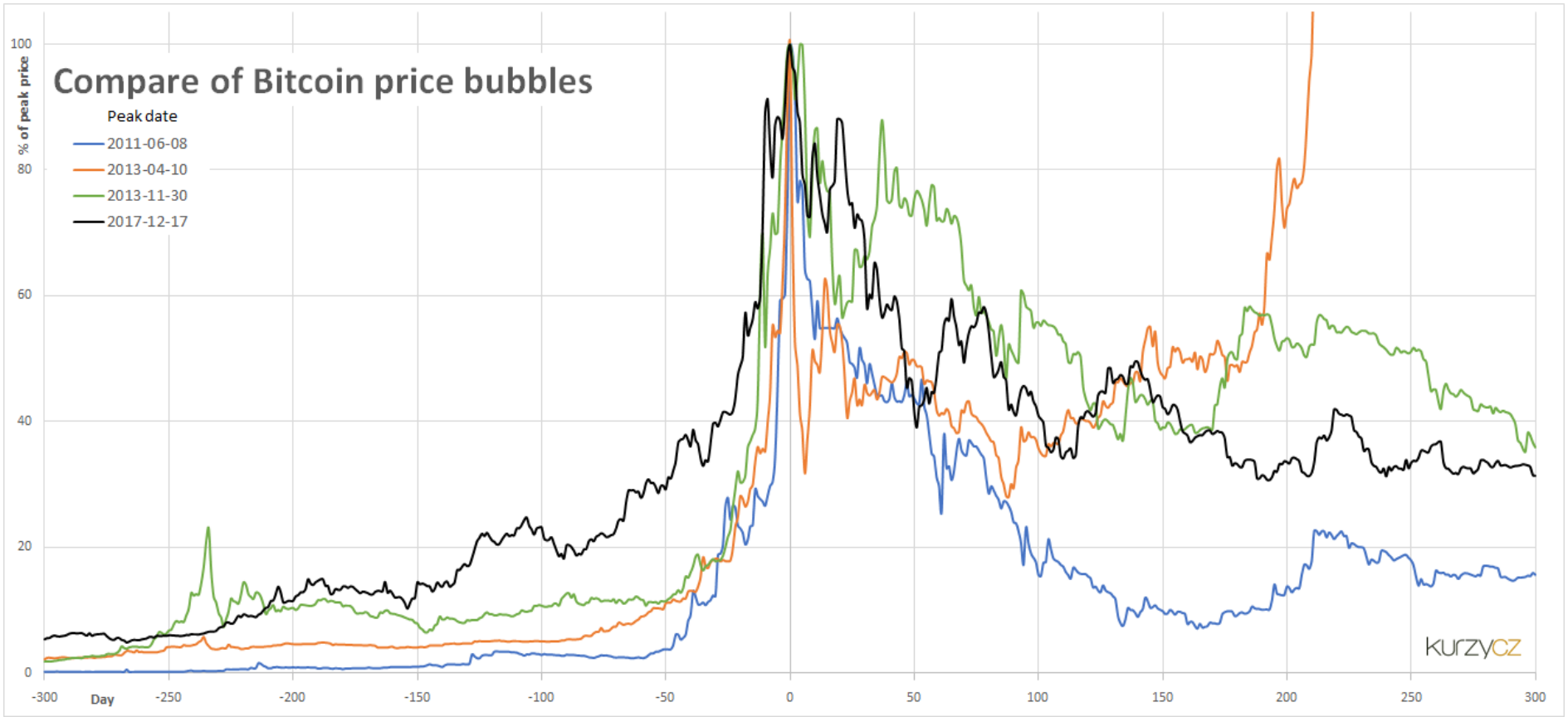

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- Medium of exchange

Black Markets

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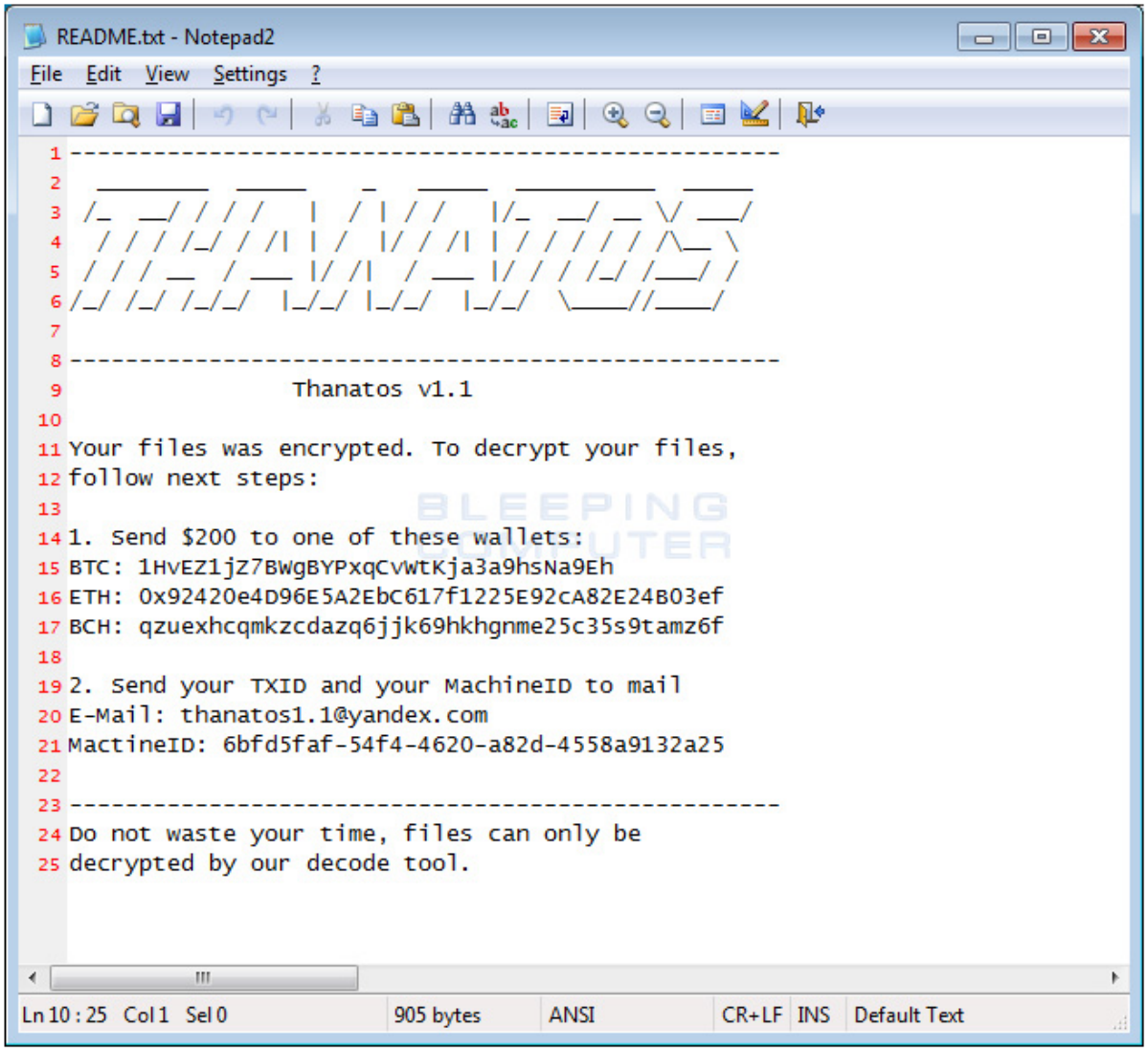
  - can be devastating for bigger companies

Cryptocurrency in crime

- e.g Thanatos(2018)



Thanatos Ransom Note

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Example

Few weeks ago security firm Radiflow announced discovery of crypto mining malware in the monitoring network of water utility in Europe.

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- e.g Worms

Worm	Date	Platform	Mines	Spreads
Otorun	Oct. 2012	Windows	BTC	.lnk
Darlloz	Nov. 2013	Linux	MNC, DOGE	PHP
Miner-C	Aug. 2016	Windows	XMR	FTP creds
Adylkuzz	May 2017	Windows	XMR	SMB
RubyMiner	Jan. 2018	Lin., Win.	XMR	PHP, IIS, Ruby
PyCryptoMiner	Jan. 2018	Linux	XMR	SSH creds, JBoss
WannaMine	Jan. 2018	Windows	XMR	SMB
ADB.Miner	Jan. 2018	Android	XMR	Android Debug Bridge

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> *Q: Is this a scam?*
>
> *A: Yes, it's as much a scam as 99% of the ICOs out there, but it's more transparent about it* 🙂

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Example

In 2017 price of Etherium dropped to 10 cents for few sec, causing bots to cascade sell. The cause was a multimillion sell order on the exchange.

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Strategy

Mine valid block, as long as block chain has one less block then you, mine new blocks. When main block catches up to you(off by one block) publish your blocks, making your chain the longest and becoming new main root.

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  - can become by colluding of smaller miners and emulating majority miner strategy

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  - since most big miners have capital tied up to mining hardware which will loose value if exchange rate declines

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  - have beed observed through altcoin infanticide on CoiledCoin in 2012 (rip)

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  - attacker convince others to join by rasing fee necessary to commit a "blacklisted" transaction to $\alpha * U$, where U is the average reward from a block

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Example

Chainalysis is a company specializing in connecting crypto addresses to real identities and other analysis over blockchains. They work with governments to find identities of criminals.

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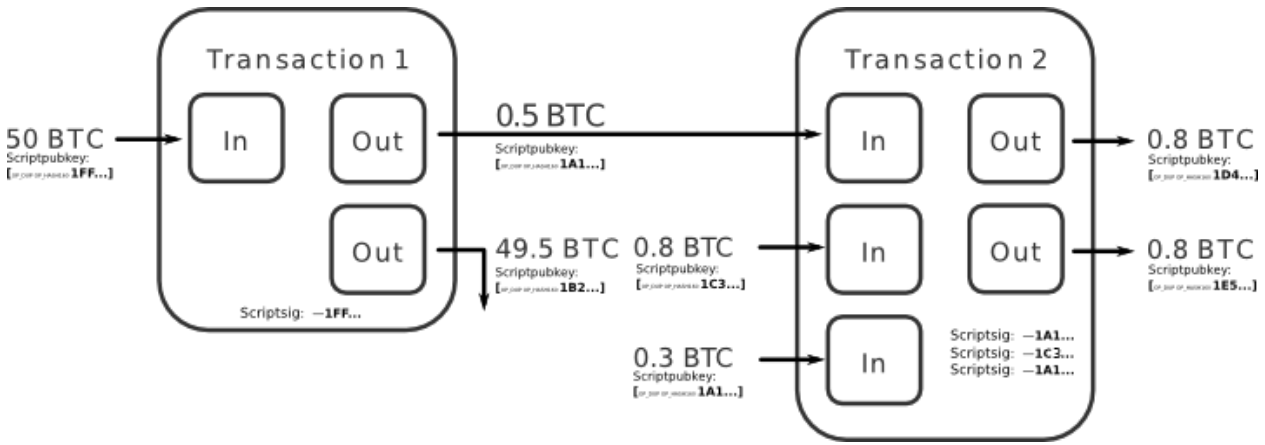
  - newest protocol don't allow participants to know what addresses are at inputs



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  - there are many existing services that do it for small fee

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  - decide what is most important to you
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  - be aware of etherium based ICOs and possible roll backs from founders

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  - it's best to check the security part of exchange websites

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Security layers of crypto

- The Third layer: Wallet
  - Hot wallet
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Fin

Thanks for your attention!