

BLOCKCHAINS AND FINTECH

PRESENTED TO **RHB** - JAN 2017 - PRESENTED BY



neuroware

BUT LET ME FIRST INTRODUCE NEUROWARE



Mark Smalley - CEO

Living in Malaysia for the past 19 Years

Building Web Applications for 15 Years

Spent 10 Years Building Tech Communities

Developing Blockchains Apps for 5 Years

Ruben Tan - CTO

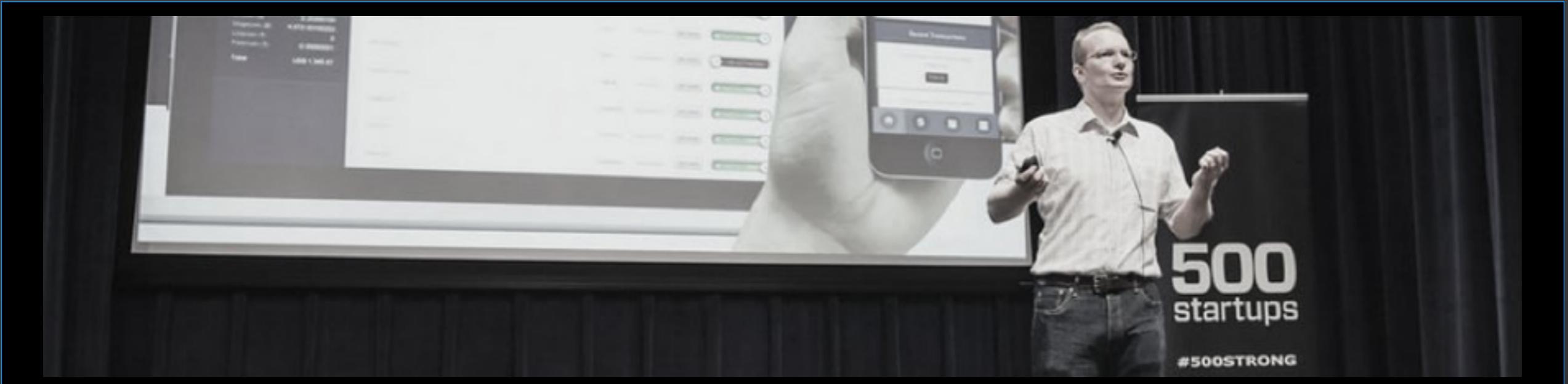
Building Web Applications for 10 Years

Active Community Evangelist & Presenter

Early Developer at MyTeksi and OnApp

Studying Distributed Consensus for 5 Years

EXPERIENCED INNOVATORS IN AN EARLY ECOSYSTEM



- **1st Malaysian Company** to Graduate from 500 Startups in Silicon Valley
- **1st Company in Asia** Providing Public Blockchain APIs & Developer Toolkits
- **1st in The World** to Develop Non-Financial Blockchain Agnostic Protocols
- Helped Organize World's 1st Bank-Backed Blockchain Hackathon (DBS)
- Over 15 Years of Collective Blockchain Development Experience

RECENTLY LAUNCHED CORTEX - WORLD'S 1ST BLOCKCHAIN O/S

CORTEX

dashboard add domain add user add database add api key help credits : 11.00000000 flush logout

DASHBOARD

DOMAINS

USERS

DATABASES

API

EXPLORER

WALLET

SETTINGS

You are currently logged-in with your private key!
Please remember to logout when you are done editing in order to remove the private key from localStorage.

YOUR PROFILE

EDIT

Name: Mark Smalley
Title: Co-Founder & CEO
Company: Neuoware

CURRENT USAGE

REPORTS

Domains: 3 / 10
Sub-Domains: 64 / 100
User Accounts: 5 / 10
Databases: 72 / 100
Active Modules: 2 / 7
Active Protocols: 3 / 8

RECENT ACTIVITY

MORE

Updated DNKey on mark.neuoware.io
12 seconds ago by Mark Smalley

Added new user johnny.neuoware.io
1 minute ago by Mark Smalley

New Everstore db at team.neuoware.io
3 minutes ago by Mark Smalley

New wallet for mark.neuoware.io
1 hour ago by Mark Smalley

Added new user johnny.neuoware.io
2 days ago by Mark Smalley

New Everstore db at team.neuoware.io
3 weeks ago by Mark Smalley

New DNKey on keys.neuoware.io
3 month ago by Mark Smalley

A BRIEF HISTORY OF MODERN MONEY

WHERE NO IDEA IS A NEW IDEA

IT ALL STARTS HERE - ON THE ISLAND OF YAP



SHOPPING WAS NOT EASY



SO THEY CREATED THE WORLD'S FIRST PUBLIC LEDGER



WHERE UPDATES REQUIRED GROUP CONSENSUS

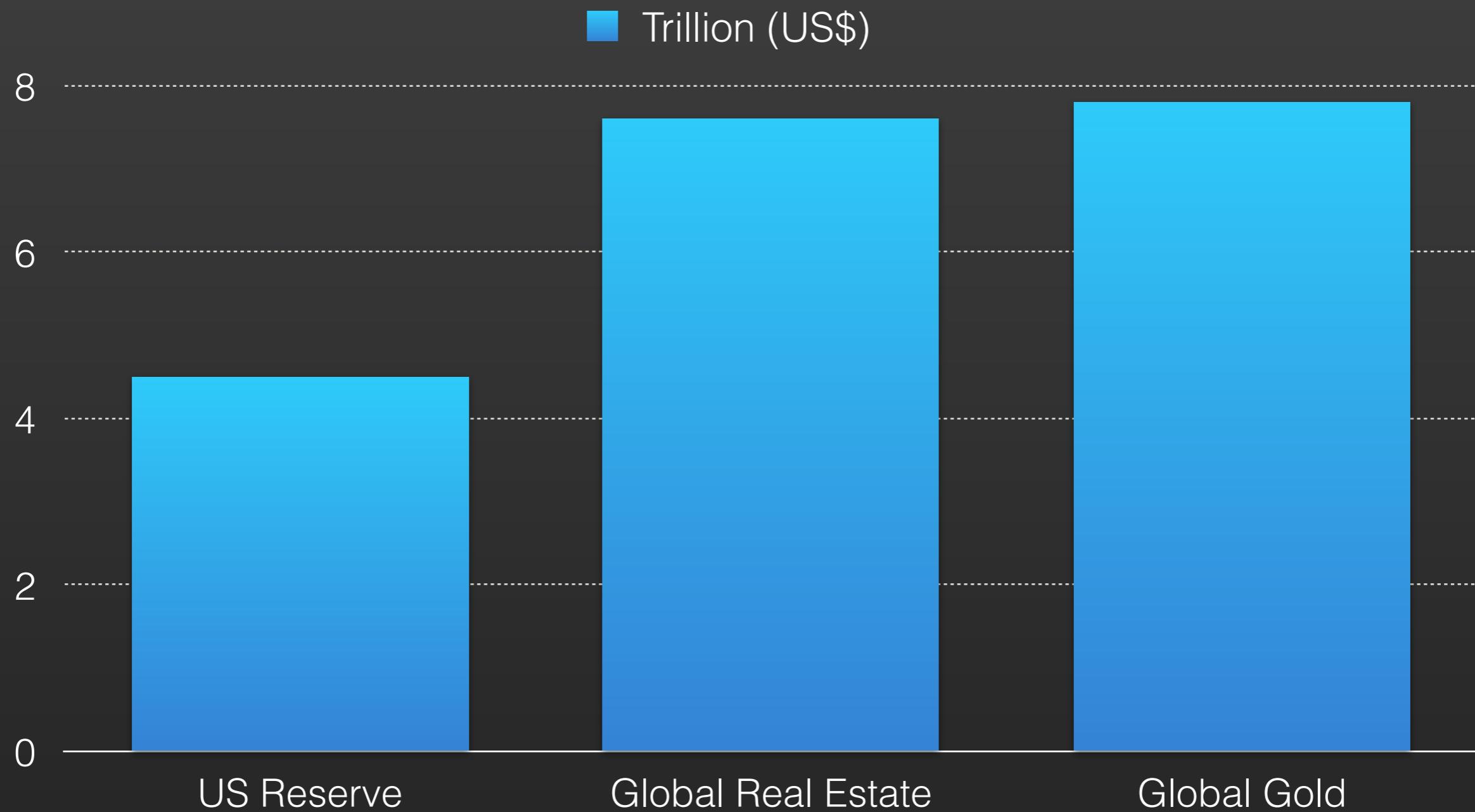


- Size wasn't everything
- The history of each stone determined it's individual value
- Conducting transactions quite literally involved a song & dance
- This required the majority of people from the village to be present

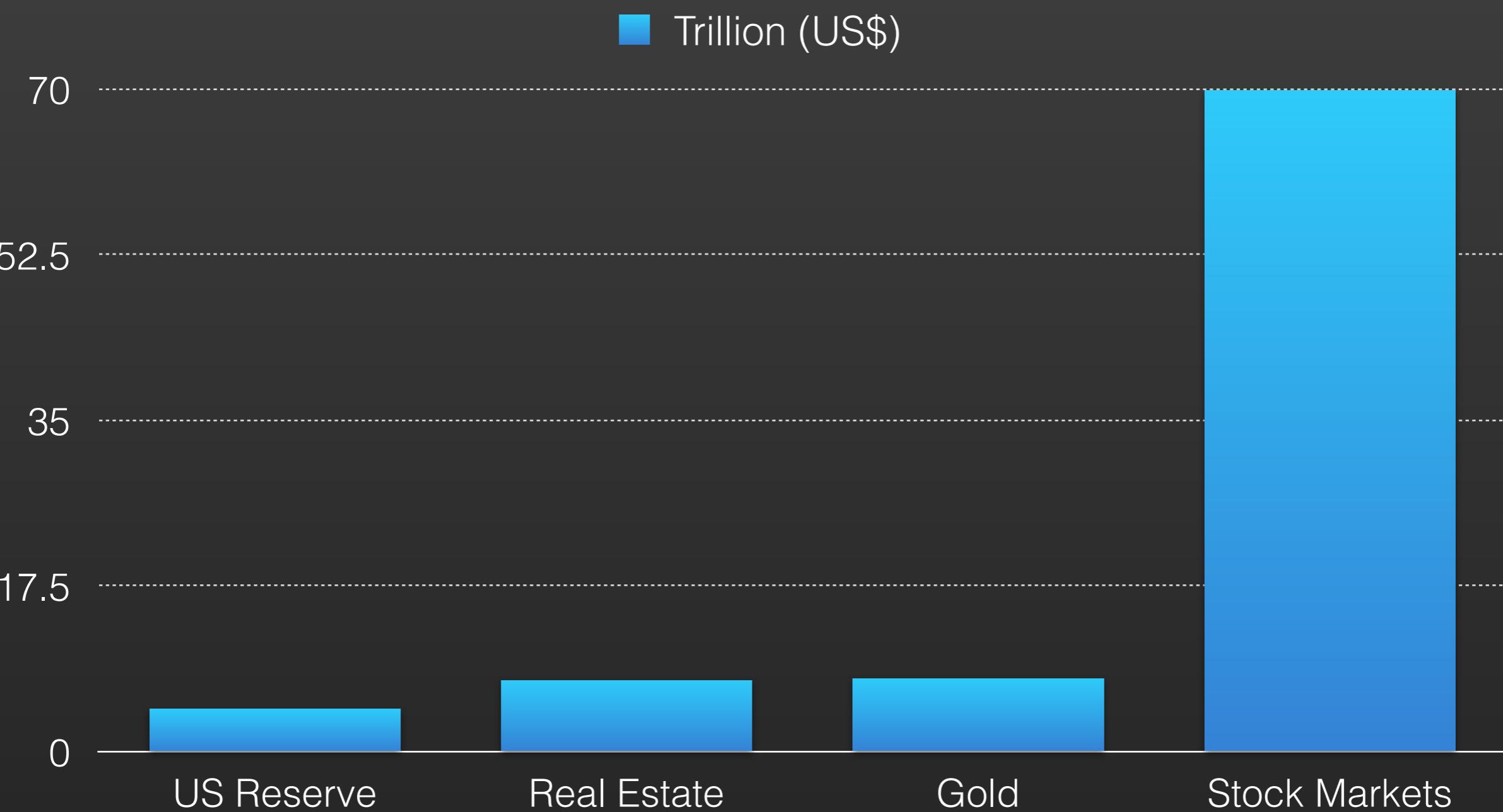
BUT IT COULD NOT SCALE - THEY EVENTUALLY SWITCHED TO US\$



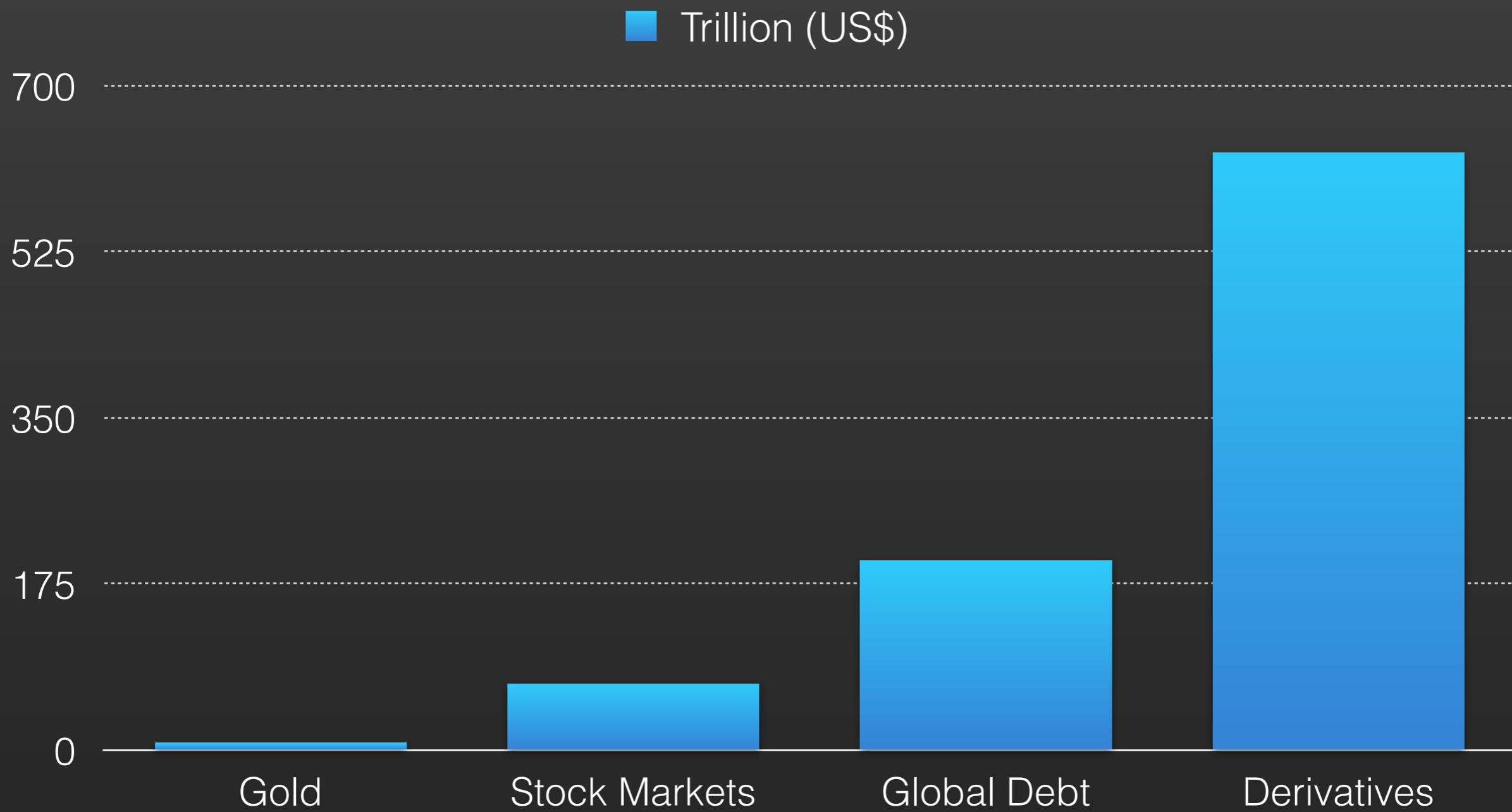
WHEN WE THINK OF THE US DOLLAR WE THINK OF **REAL MONEY**



AND THEN CAME DIGITAL CENTRALIZED ASSETS



AND WITH IT CAME THE RE-CREATION OF ~~MONEY~~ DEBT



IT ALL ENDS IN TEARS (512 US BANKS CLOSED SINCE 2008)



World War 2
US\$3 Trillion

2008 Bailout
US\$8.5 Trillion

All other US
Wars Ever

This really annoyed
Satoshi Nakamoto

A TIP-TOE INTO BITCOIN
MAGIC INTERNET MONEY

BITCOIN

VS

BLOCKCHAINS



DOGECOIN

VS

RIPPLE



ETHEREUM

VS

PRIVATE CHAINS



WHAT'S THE MAIN BENEFIT OF A PUBLIC BLOCKCHAIN ...?



WHAT ARE THE BENEFITS OF DISTRIBUTED PUBLIC LEDGERS?

- They provide an immutable tamper-proof audit-trail of the truth
- Data can be easily shared and independently verified by third-parties
- Vastly increased security that is much less vulnerable to attack or outage
- Programmable contracts that can radically reduce human errors and costs



“While Fintech Disrupts Banks,
the Blockchains Disrupt Fintech”

INTERESTING BITCOIN BLOCKCHAIN FACTS TO REMEMBER

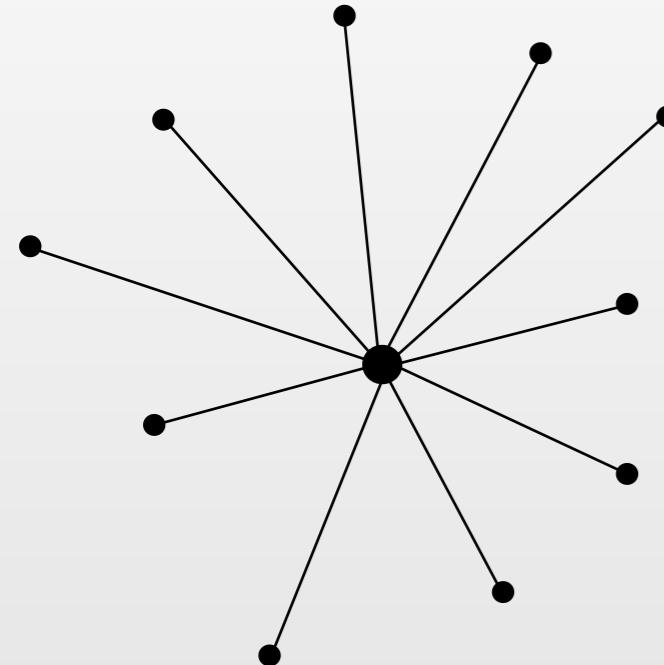
- Bitcoin blockchain released in January 2009 by Satoshi Nakamoto
- We do not know who Satoshi is, or what their religion or political views are
- However, the bailout of 2008 was cited as primary catalyst for its creation
- US\$13 per coin in 2013 (which is when we bought) - now US\$540 per coin
- The Bitcoin network is currently processing over 200,000 daily transactions
- The network's market capitalization is currently around US\$7 billion
- 21 million maximum finite supply, decreasingly dispersed every 10 minutes
- **But most importantly of all is the technology behind it...**

BITCOIN AND BLOCKCHAINS HAVE NO NEW TECHNOLOGY

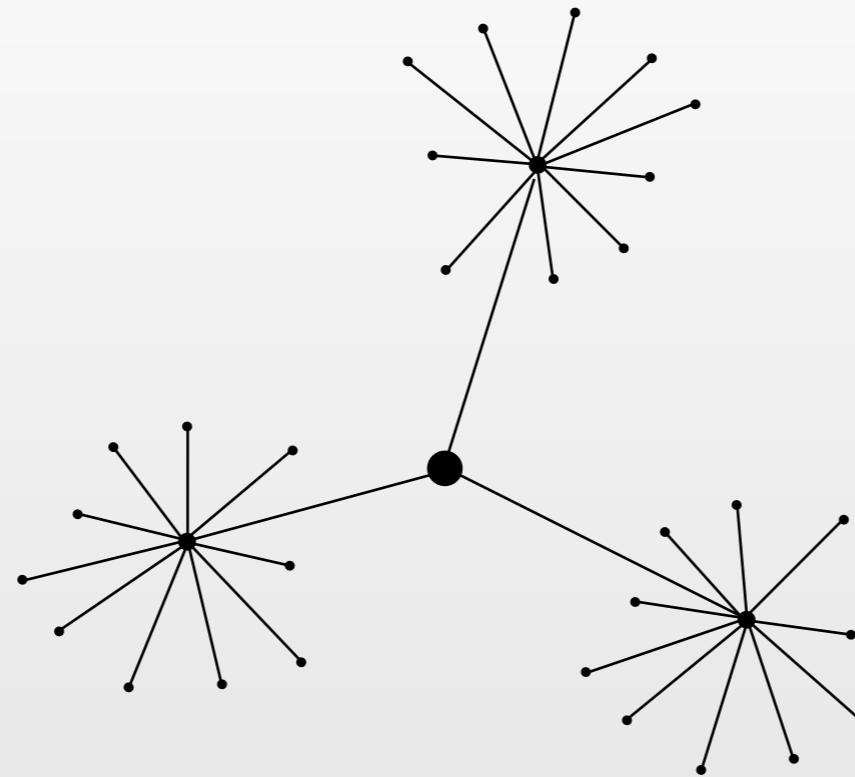


- HASH - Theorized in the 1800s - Coined by IBM in the 1950s
- SHA - Encryption method first introduced by US Navy in 1993
- P2P - Peer to peer protocol popularized by Napster in 1999

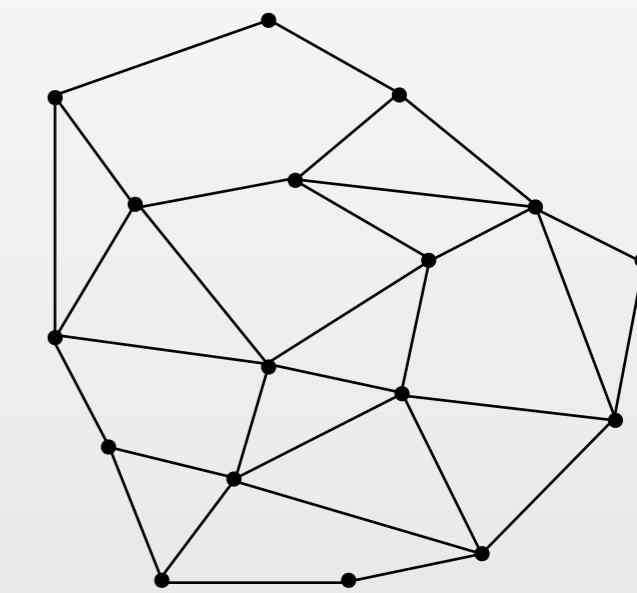
COMPARED TO WHAT...? **TRUTH** CAN ONLY BE STORED ONE WAY



CENTRALIZATION
DATABASES



DECENTRALIZATION
THE CLOUD



DISTRIBUTION
BLOCKCHAINS



BLOCKCHAINS ARE SIMPLY A NETWORK OF NODES

- Each member of the network runs their own node and all nodes are equal
- The blockchain becomes more secure as more nodes join the network
- All transactions across the entire network are tracked by each node
- **There are no actual coins** - there is only a ledger of who owns what
- Cryptographic key-pairs represent accounts and passwords
- On the blockchain - no one knows you're a fridge



EVERY ACCOUNT IS MERELY A SET OF KEYS



EACH “ADDRESS” REQUIRES A PRIVATE KEY TO ACCESS IT



SOME ADDRESSES EVEN REQUIRE MULTIPLE KEYS



WHAT'S IN A BITCOIN TRANSACTION?

- Multiple unspent inputs are used in order to form the total value sent
- Cannot send proportions of inputs, must use all and send the change back
- Because a single transaction can send multiple values to multiple outputs
- Fees are based upon the total size (inputs and outputs) rather than value
- Paying these fees is done by forgetting to send some value to someone
- Transaction scripts can contain complex variables (multi-sig & timed locks)



ALICE CAN'T SEND WHAT SHE DOESN'T HAVE AND BOB WANTS 5

ALICE'S UNSPENT INPUTS

10



3



2



THE TX
SIGN OUTPUTS

5

4

RELAY HEX TO NETWORK

BOB GETS 5

5

CHANGE MINUS FEE

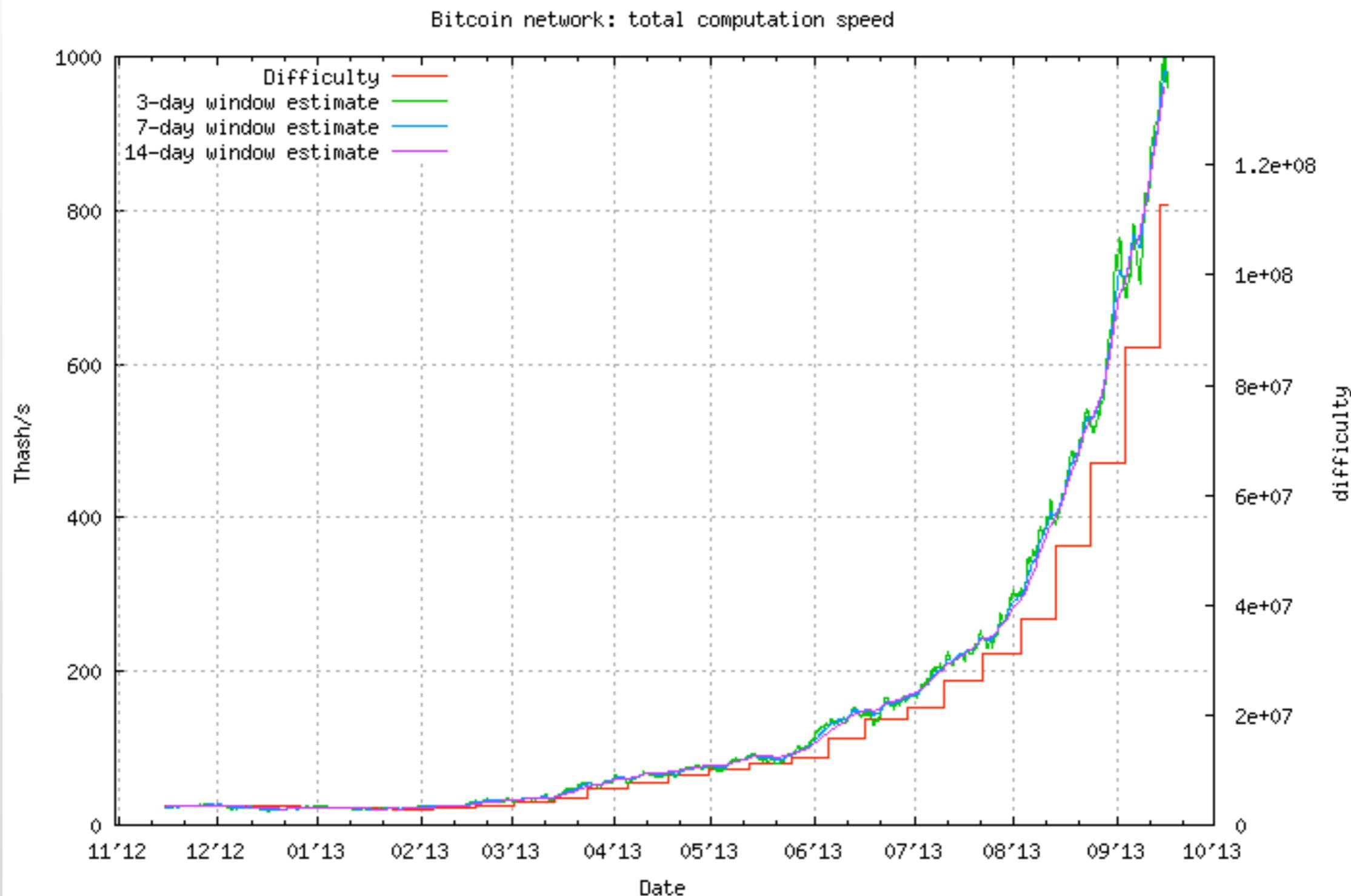
4

PUTTING THE BLOCKS INTO THE BLOCKCHAINS

- Transactions are batched into blocks every ten minutes (with Bitcoin)
- To reach **consensus** as to which node has the right to add the next block to the chain, miners compete in a race to solve cryptographic equations
- They then add a nonce (one use number) to the block and hash it
- If the hash has X number of zeros at the beginning it becomes a valid block
- Otherwise the miners increase the nonce and they hash the block again
- Solving these cryptographic equations is becoming increasingly difficult



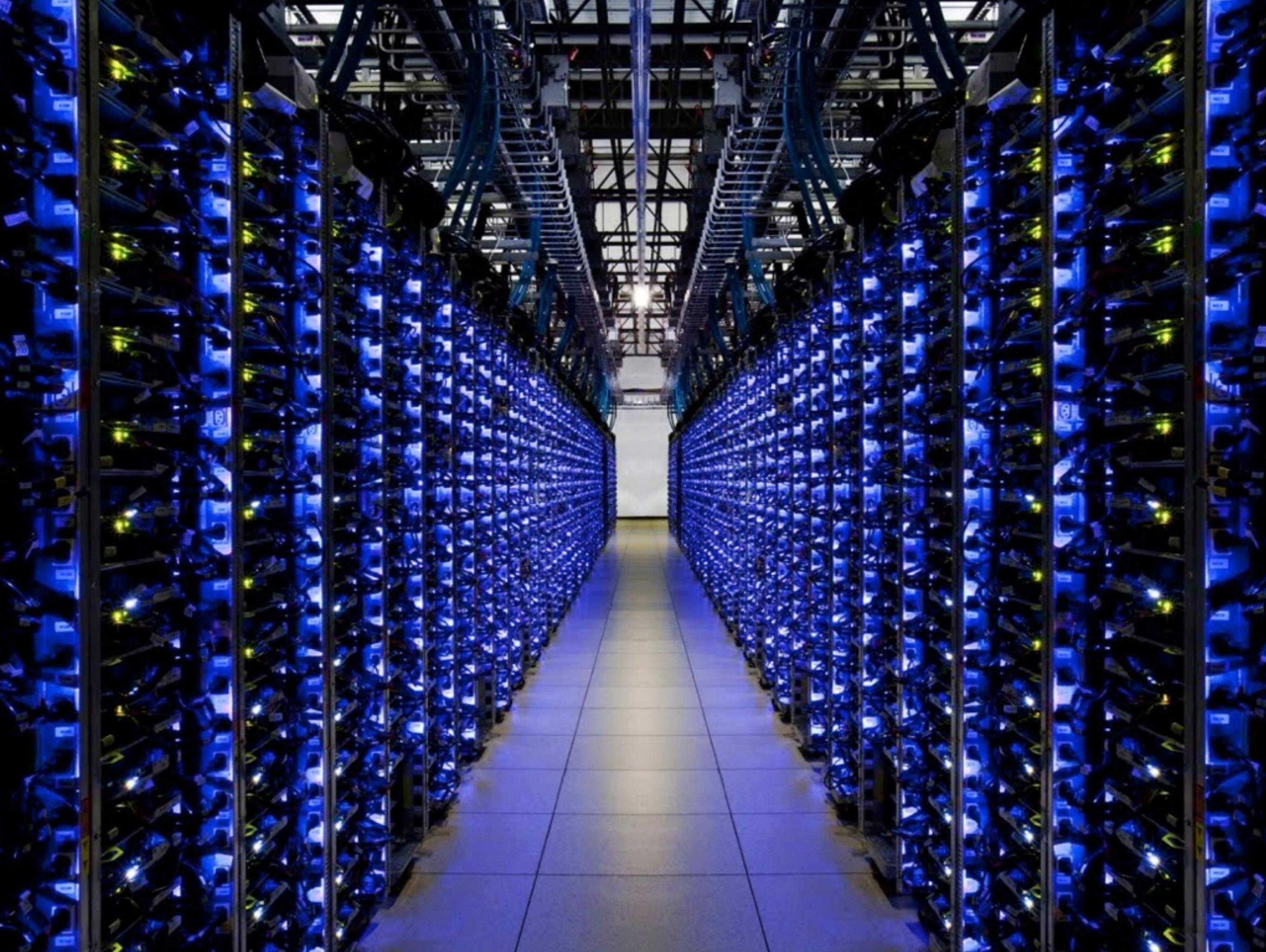
THIS IS THE HASHING POWER OF THE NETWORK IN 2013



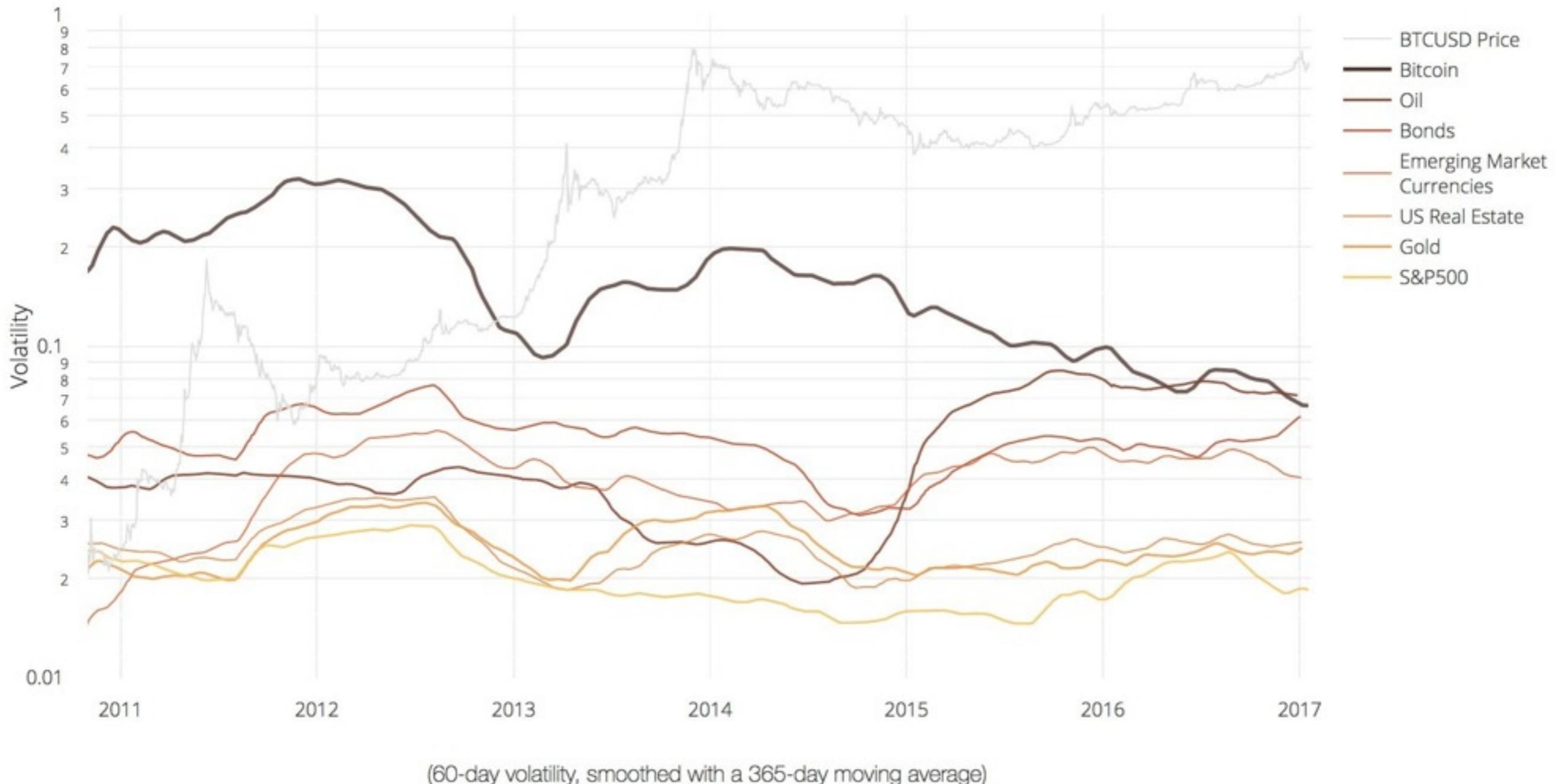


MINING IS NOW A BILLION DOLLAR BUSINESS





BITCOIN VOLATILITY AT AN ALL TIME LOW



BITCOIN ISN'T EVERYTHING
BILLIONS INVESTED IN BLOCKCHAINS

BANKS ARE MOVING FAST DUE TO ECOSYSTEM MATURITY

As of January 2016, more than 60 banks and leading financial institutions have made statements confirming that they are actively working on blockchain projects.



BLOCKTECH in FINANCIAL SERVICES Landscape

APPLICATIONS & SOLUTIONS



MIDDLEWARE & SERVICES



INFRASTRUCTURE & BASE PROTOCOLS



SOME OF THE INSTITUTIONS LEADING THE WAY



Custom blockchain
for settlements



Standard
Chartered



Blockchain based
trade finance platform

Blockchain based
loyalty platform

Blockchain based
remittance platform



multiple blockchains for cross-
border payments and loyalty

Deutsche Bank



Exploring KYC and AML
via the blockchains



Patented a blockchain
based wire transfer system



NASDAQ®

IBM

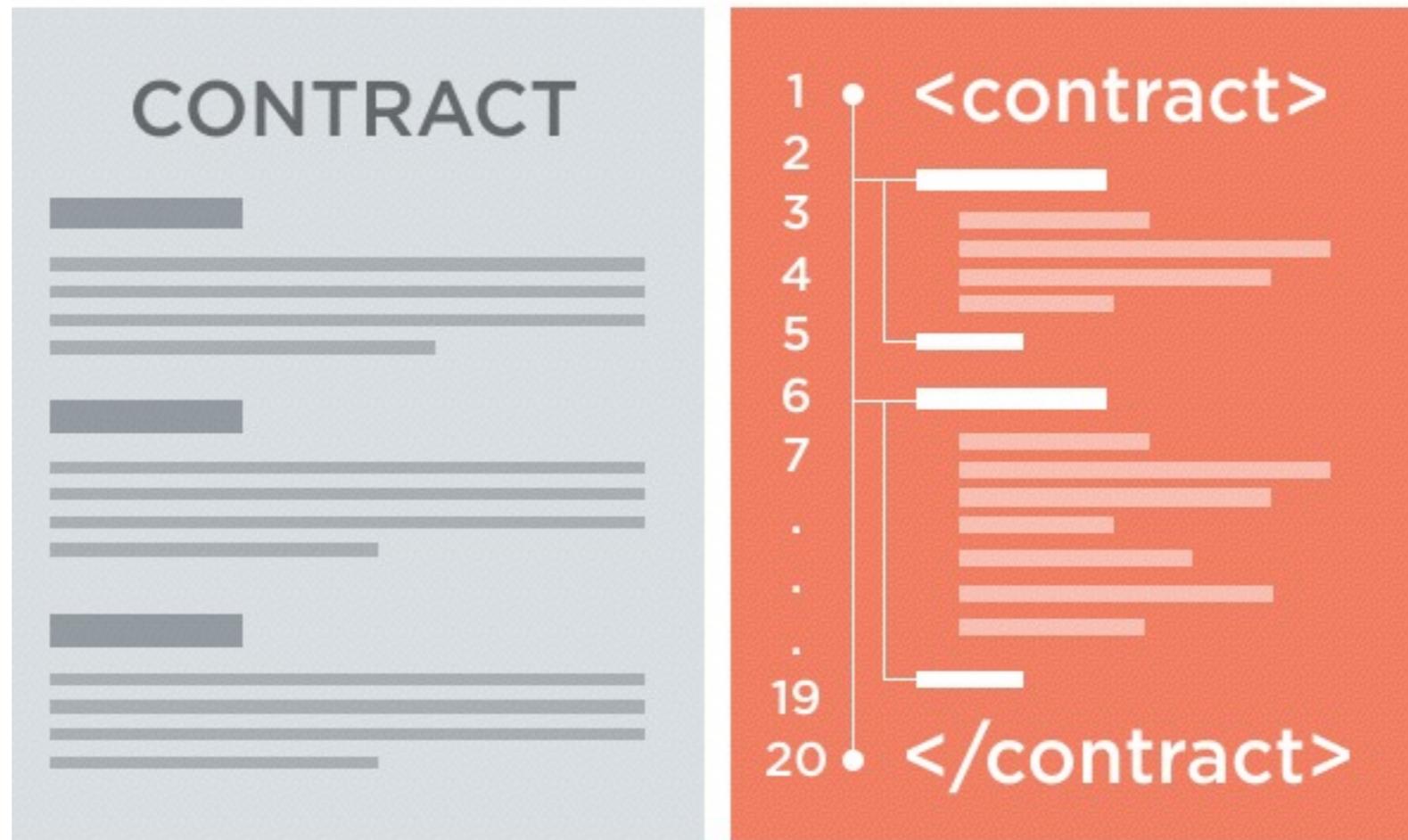
ETHEREUM TAKES THINGS ONE STEP FURTHER



THE WORLD'S SUPER COMPUTER...?

- Raised US\$15 Million in crowd-funding when launching their Ether currency
- Aiming to be the first turing complete blockchain, they have almost achieved it
- Heavily supported by Microsoft & also being used by IBM for their IoT platform
- Recently raised US\$150 Million in crowd-funding their own venture fund
- However, the more moving parts a system has - the more likely it is to break

SMART CONTRACTS ARE EVERYWHERE



- Even Bitcoin utilizes basic smart contracts (with over 100 script functions)
- Smart contracts are snippets of code stored and executed by the network
- They can perform transactional based events if defined conditions are met

WHAT'S REALLY IN A TRANSACTION?

CO-FOUND... | BLOCKSTRA... | Blockstrap | msmalley/f... | Everstore | ATA-Plus A... | Legality of ... | bitcoin tran... | mining bitc... | Mining Bitcoin i... | BlockAuth | http://...0fd21

api.blockcypher.com/v1/btc/test3/txs/235a88e9853c1c116ef47f795f13ce200c2e1bf37667e99973e1c829f95t | bitcoin transaction script | Back | Forward | Home | Reload | Stop | Search | Favorites | Help | More | More

```
{
  "block_hash": "00000000009f30c59abf2f8556c0949c79b54764f4cbb223ca43527394d3ee2f",
  "block_height": 847281,
  "block_index": 24,
  "hash": "235a88e9853c1c116ef47f795f13ce200c2e1bf37667e99973e1c829f95b95f7",
  "addresses": [
    "mpNENnsFcL8a5hPxwfPrYPkZqAkbbFpxLF",
    "mq7tNFrbi3E3fsuUbsTsA7keoeYL6gYzv2"
  ],
  "total": 86124000,
  "fees": 10000,
  "size": 339,
  "preference": "medium",
  "relayed_by": "",
  "confirmed": "2016-05-16T07:51:20Z",
  "received": "2016-05-16T07:51:20Z",
  "ver": 1,
  "lock_time": 0,
  "double_spend": false,
  "vin_sz": 2,
  "vout_sz": 1,
  "confirmations": 19557,
  "confidence": 1,
  "inputs": [
    {
      "prev_hash": "bb4cef4d48dba1916c73552342b660be00535c43ad47462abf43a402cc2a61a1",
      "script": "4730440220618bd76a683d2603edb570e66b851f85dd594abd7a3c25a2b29064b01695907502201edeac4cd777e04a393cf1bca0d7ba5916e3fc8c67efa33268a936bf96b9a7e012103530d0cbdfcd448b8d96ac9c1cbdc88a2f60e05a7f16e7ab321185afb0523e9fc",
      "output_value": 86124000
    },
    {
      "sequence": 4294967295,
      "addresses": [
        "mpNENnsFcL8a5hPxwfPrYPkZqAkbbFpxLF"
      ],
      "script_type": "pay-to-pubkey-hash"
    }
  ],
  "outputs": [
    {
      "value": 86124000,
      "script": "76a914695469844938fd58e5cf59987f4cc063d4d657a788ac",
      "addresses": [
        "mq7tNFrbi3E3fsuUbsTsA7keoeYL6gYzv2"
      ]
    }
  ]
}
```

DECODING SCRIPT HEXES

- 80% of transactions are known as **standard transactions**
 - OP_DUP OP_HASH160 <pubKeyHash> OP_EQUALVERIFY OP_CHECKSIG
- Approximately 1% of transactions contain **OP>Returns**
 - OP_RETURN <hexedData> - can you find Gandhi?
- There are even a few hidden puzzles on the blockchain...

OP_HASH256

6fe28c0ab6f1b372c1a6a246ae63f74f931e8365e15a089c68d6190000000000

OP_EQUAL

ETHEREUM TAKES THINGS ONE STEP FURTHER

```
contract MyToken {  
  
    /* Public variables of the token */  
    string public standard = 'Token 0.1';  
    string public name;  
    string public symbol;  
    uint8 public decimals;  
    uint256 public totalSupply;  
  
    /* Allow interface to create tokens */  
    function MyToken( ... )  
  
    /* Send coins */  
    function transfer( ... )  
  
    /* Allow another contract to spend some tokens in your behalf */  
    function approveAndCall( ... )  
  
    /* A contract attempts to get the coins */  
    function transferFrom( ... )  
}
```

CURRENCIES CAN BE MANY THINGS - EVEN VOTING RIGHTS

- Symbol = %
- Decimals = 2
- Name = Equity

Contracts can also be linked, which allows governance contracts (DAOs) to then be able to vote and control upon custom currency transfers...

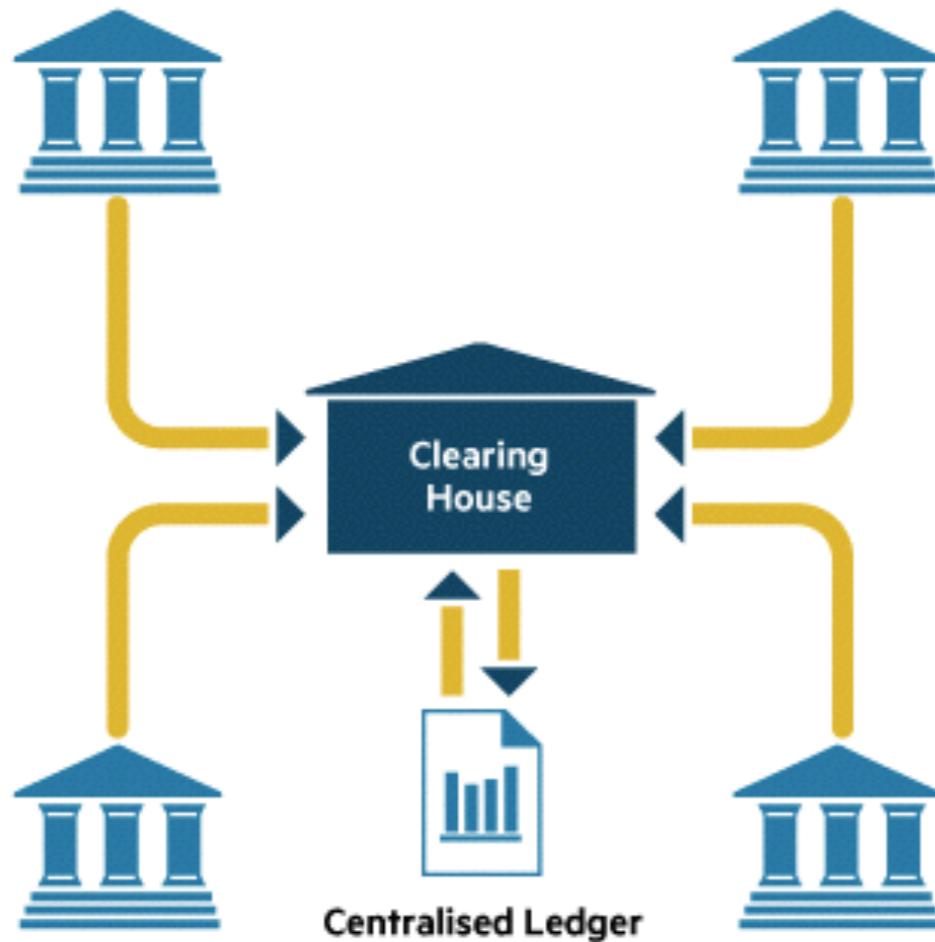
IMITATION IS THE BEST FORM OF FLATTERY



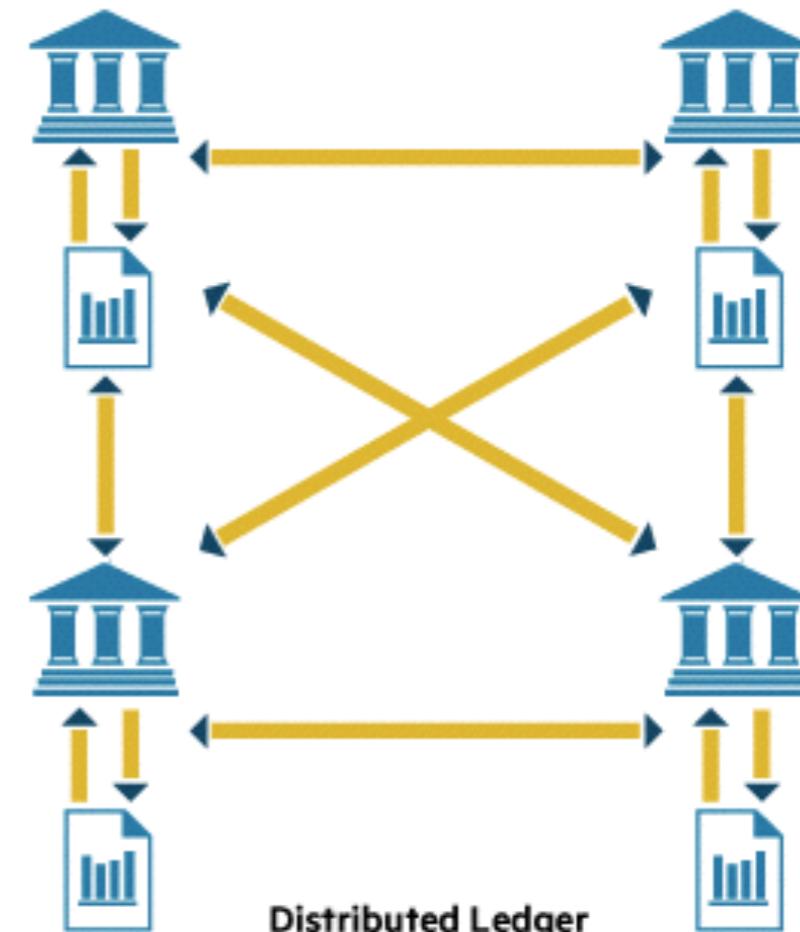
- 1st Generation of Alt-Coins forked each other with minor tweaks
- Basic breakout alt-coin successes included Litecoin and Dogecoin
- Dash (previously known as DarkCoin) worth noting due to governance
- See the Malaysian-Based **CoinGecko** for a better list!

DISTRIBUTED LEDGERS AND FINANCIAL TECHNOLOGY

FINTECH IS THE MOST OBVIOUS CHOICE FOR DISRUPTION



THE OLD WAY



THE NEW WAY

- Reconciling Multiple Central Ledgers Vs Auto-Audited Distributed Ledgers?
- Batch Processing CSVs every 24 Hours Vs Really Real-Time Settlement?

VISA THE FIRST TO BRING NEW CLEARING SYSTEM TO MARKET



Note: Conceptual vision for discussion only. Service is in development and availability, features, functionality and timing remain subject to change.

Visa Confidential

LAWMOWER - AUTO SAVINGS ACCOUNT

Convert your
spare change into
bitcoin

Buy a coffee for \$3.25 and turn the
remaining 75¢ into bitcoin.

Download on the
App Store

GET IT ON
Google play BETA

Date	Transaction	Amount	Category	Status
March 2, 2015	+\$0.01	\$3.99	Starbucks	✓
	+\$0.25	\$1.75	Taco Bell	✓
	+\$0.82	\$42.18	Whole Foods	✓
February 27, 2015				

BITJAM - P2P LOANS VIA BITCOIN

[Log In](#)[Sign Up](#)[More ▾](#)

Safe and easy
bitcoin lending.

Invest your Bitcoins and Earn Now

19.3% APR

- Protect from bitcoin volatility
- Peer to Peer lending with credit scoring
- Security done right

[Grow my Bitcoin](#)

Personal loans using Bitcoin from

6.7% APR

\$

1

0

≈ \$ 218.58

Select the purpose of your loan

Your Email address

[Get my Bitcoin](#)

Ribbit Capital

500
startups

FundersClub™

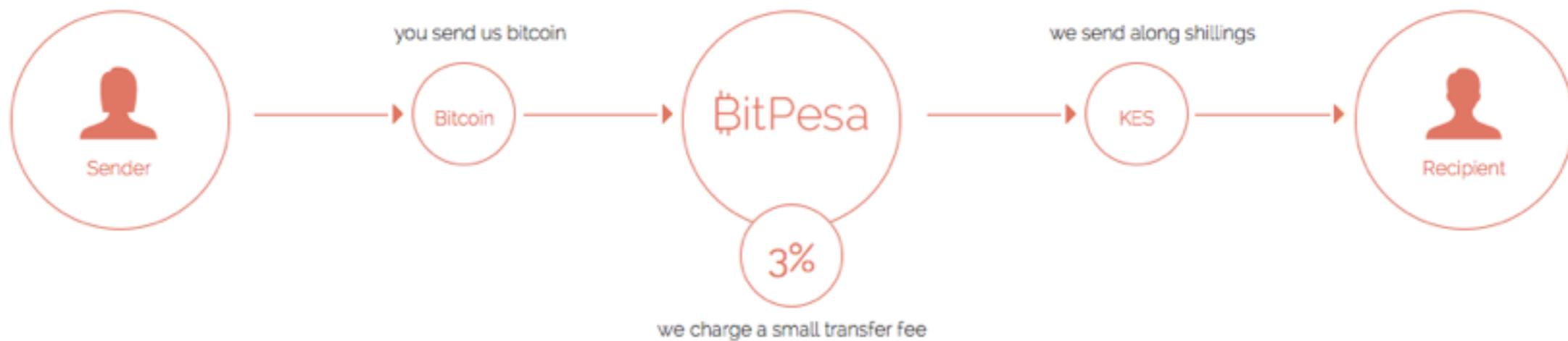
TC

TNW
THE NEXT WEB

Bloomberg

neuroware

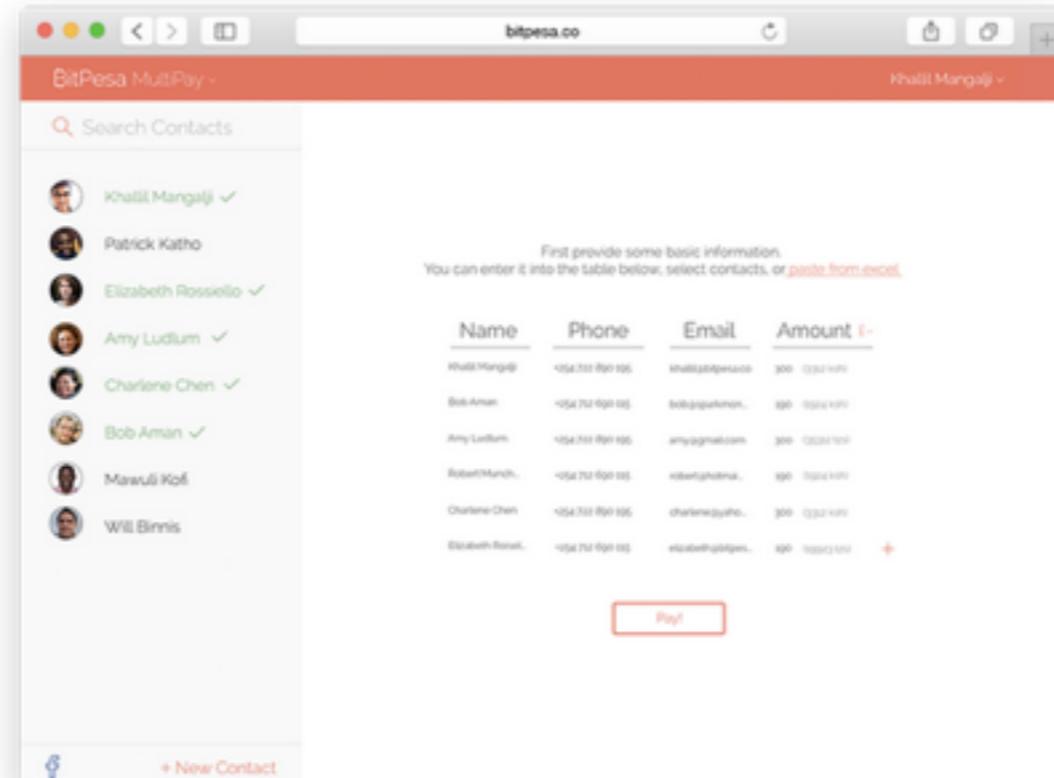
BITPESA - REMITTANCE VIA BITCOIN



Great for business

Pay staff and suppliers in Kenya in one easy transaction. You can send funds to any mobile money or bank account!

[Learn More](#)



LAMASSU - THE MOST POPULAR BITCOIN ATM



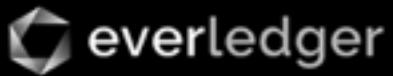
Order

Getting Bitcoin
can't be easier.

SEE PRODUCTS



BLOCKCHAINS CAN REPRESENT VARIOUS VALUES



[Home](#) [API](#) [Timeline](#) [Smart Contracts](#)

PROTECTION.

We are a fraud detection system, overlaying big data from closed sources like insurers and law enforcement.



BIG EXPECTATIONS NOW SET

- Accenture claim investment banks can save US\$12 billion a year
 - McKinsey believes financial services will save US\$110 billion in 3 years
 - White & Case say banks can reduce infrastructure by \$20 billion a year
 - Bank of England says DLT could add 3% to a country's economic output
-
- 80% of top banks to launch DLT projects by 2017 - World Economic Forum
 - IBM reports that 15% of big banks will be using blockchains by 2017
 - IBM also reported that 65% of banks will have blockchain trials by 2020
 - Over US\$1 billion to be invested in DLT by 2019 specific to capital markets

R3 - WORLD'S LARGEST BLOCKCHAIN CONSORTIUM

- Founded by ex-banking CEOs with their CTO as ex-CIO of IBM
- Over 100 financial institutions joined R3 (at US\$250,000 each per annum)
- Members are then able to engage R3 consultants for pilot projects
- Originally utilizing privately forked Ethereum & Eris solutions
- 15 members trial distributed ledgers for trade finance in 2015
- 10 banks trial blockchain (KYC) identity registry in 2016
- Now heavily promoting Corda (in-house permissioned ledger)
- Opened a lab in Singapore and started working with MAS
- Currently in the process of raising US\$200 Million in funding

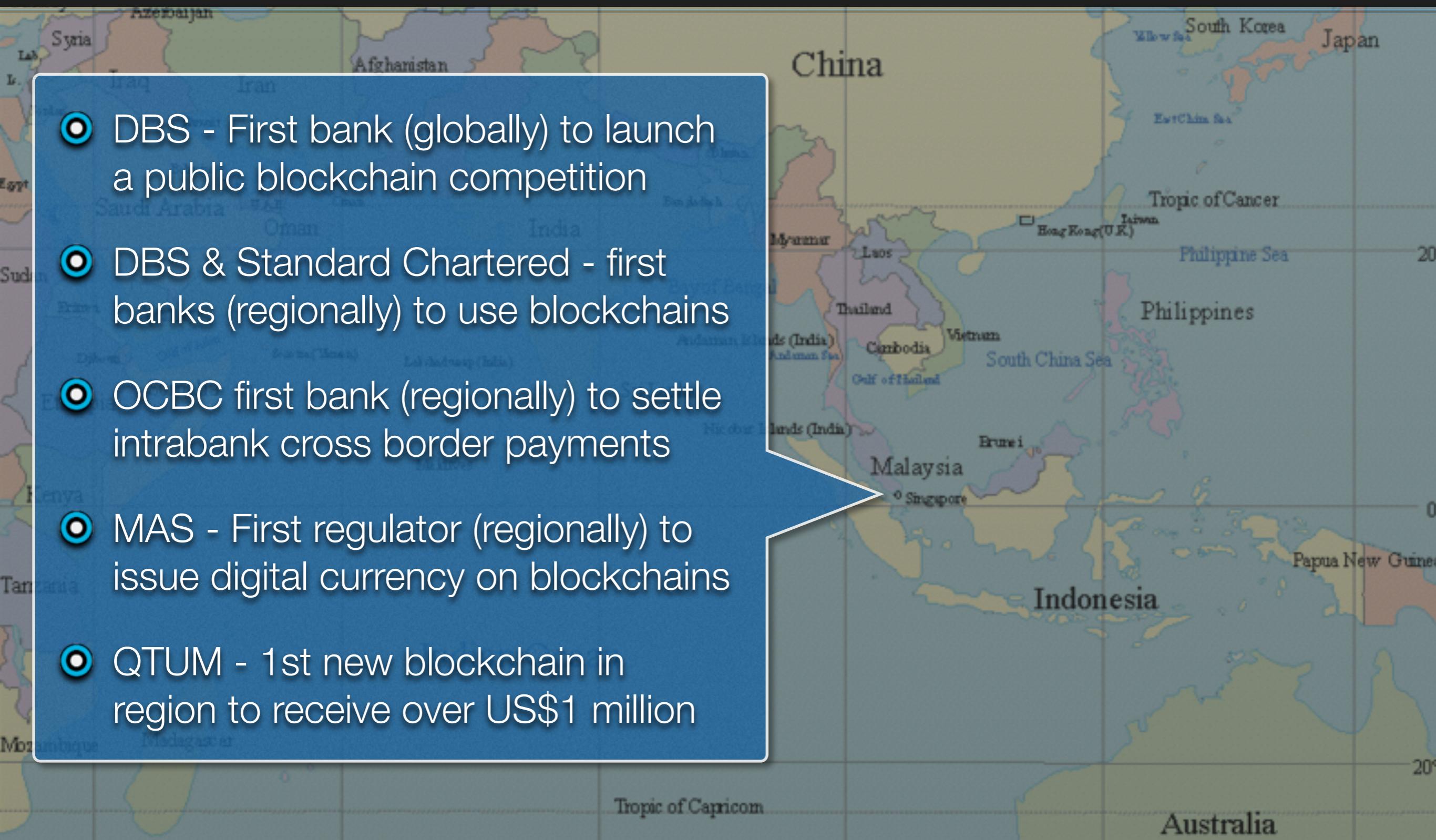
NOW OVER 25 BLOCKCHAIN CONSORTIUMS WORLDWIDE



BLOCKCHAINS AND ASIA

SINGAPORE

- DBS - First bank (globally) to launch a public blockchain competition
- DBS & Standard Chartered - first banks (regionally) to use blockchains
- OCBC first bank (regionally) to settle intrabank cross border payments
- MAS - First regulator (regionally) to issue digital currency on blockchains
- QTUM - 1st new blockchain in region to receive over US\$1 million



SINGAPORE

Otonomos
@Otonomos

@Otonomos is serving clients from 26 countries as of July! Can't wait to see how many more by the end of the year!

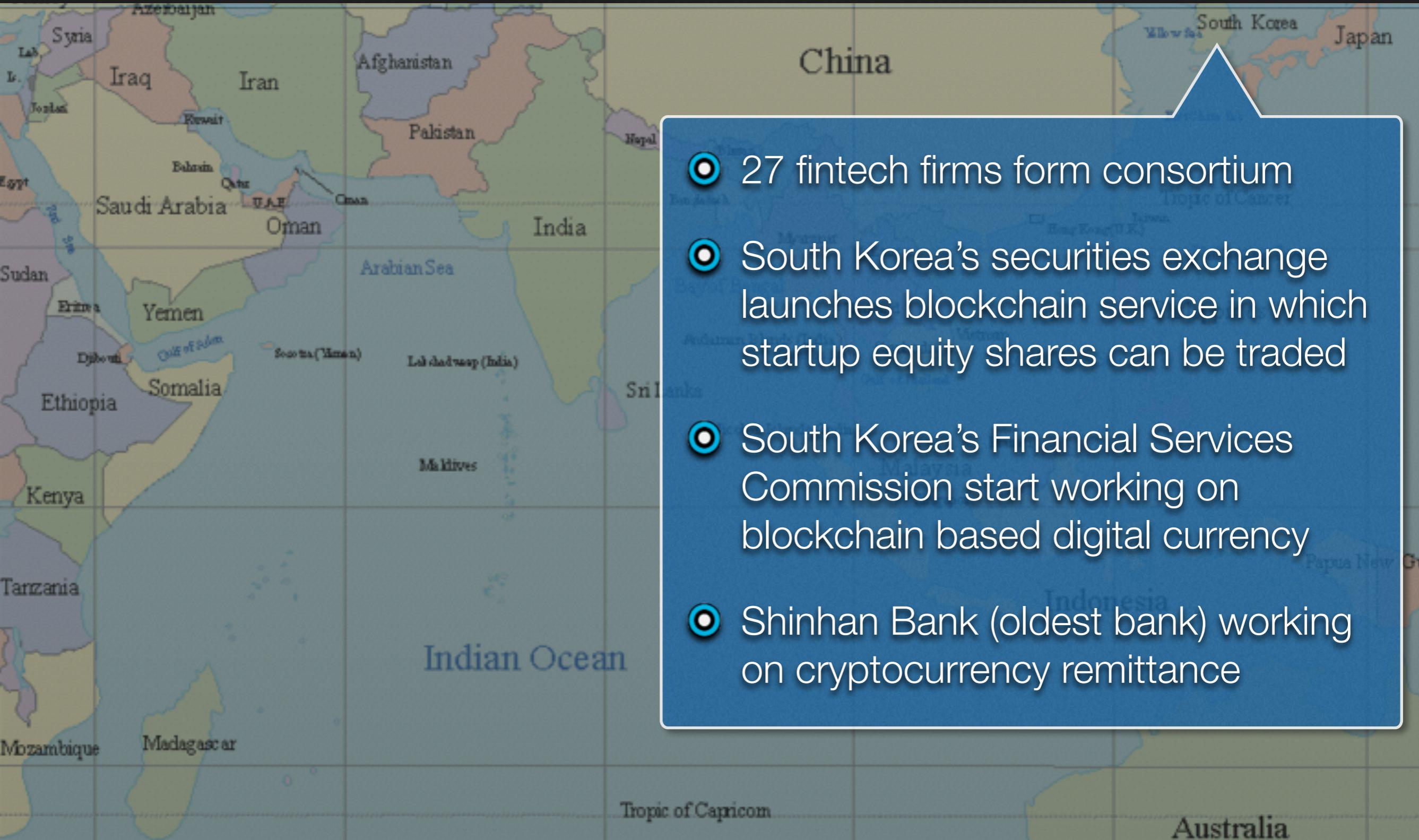


Incorporate online in Singapore, Hong Kong, UK, Cayman Islands and BVI via blockchains

CHINA



KOREA

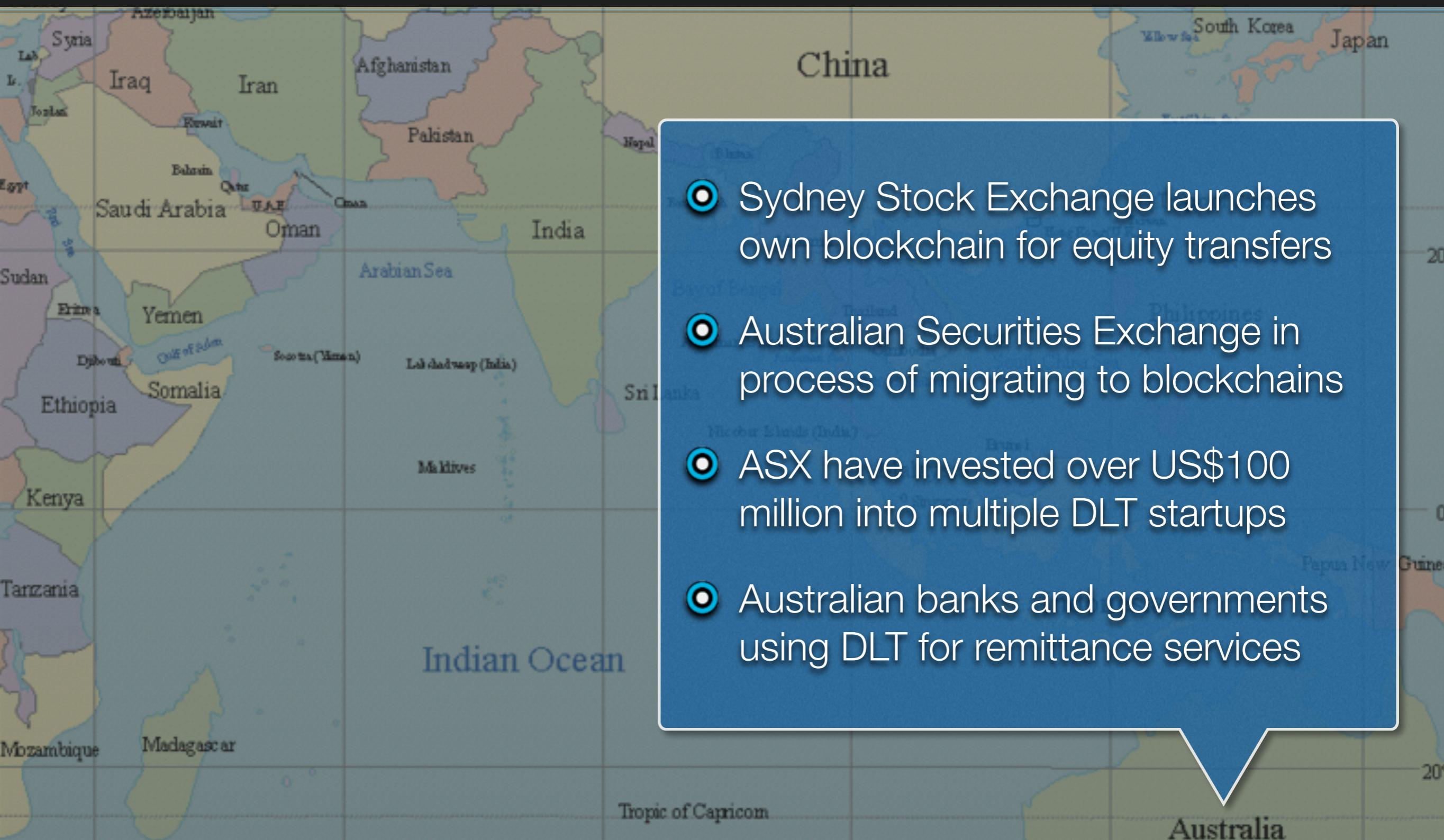


JAPAN



- 42 banks form ripple consortium, now over 100 members partnering
- Stock exchange partners with IBM
- Mizuho Financial Group and others use DLT for interbank payments
- Bank of Tokyo-Mitsubishi testing blockchain e-cheques systems
- Merchants to 5X to 20K in 2017

AUSTRALIA



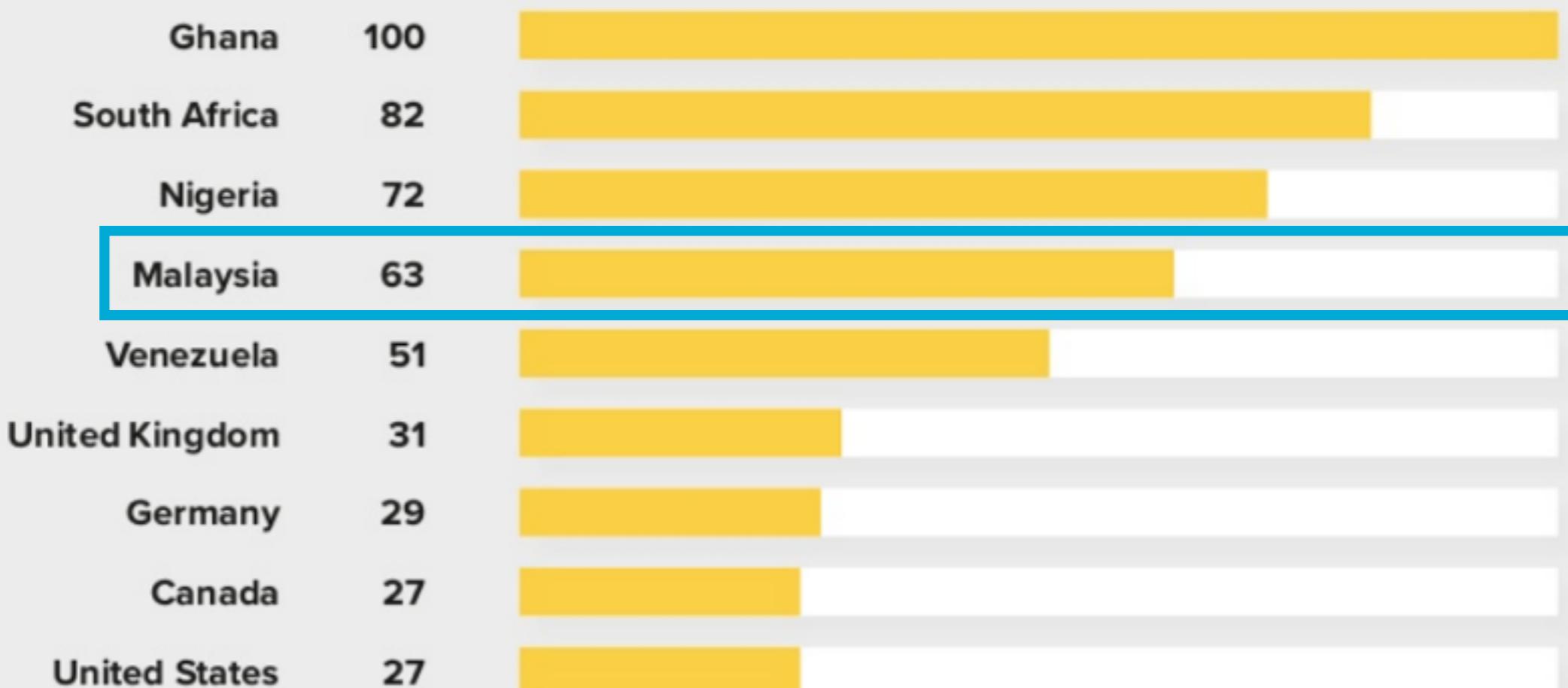
- Sydney Stock Exchange launches own blockchain for equity transfers
- Australian Securities Exchange in process of migrating to blockchains
- ASX have invested over US\$100 million into multiple DLT startups
- Australian banks and governments using DLT for remittance services

BLOCKCHAINS IN MALAYSIA

WHERE DO WE (**MALAYSIA**) STAND ...?

from the coindesk.com most recent quarterly report

MOST INCREASED INTEREST IN BITCOIN



THE BLOCKCHAIN EMBASSY OF ASIA - MADE IN MALAYSIA



BlockChain Embassy Asia

AMBASSADORS

USE CASES

CONTACT EMBASSY

TOOLBOX

NEWS

**our mission is to educate organizations throughout asia in both
the legal and technical implications of distributed ledgers**

We are a non-profit digitally distributed organization that is using and promoting blockchain governance as a method for collaboration between various business entities and existing community efforts across Asia

REQUEST MEMBERSHIP

9 FOUNDING MEMBERS FORM THE STEERING COMMITTEE

Malaysian BlockChain Ambassadors



Trustee Ambassador

MahWengKwai
& Associates

Legal Ambassador



Banking Ambassador

CapitalBay

Invoicing Ambassador

1337
VENTURES

Community Ambassador



IoT Ambassador



FinTech Ambassador

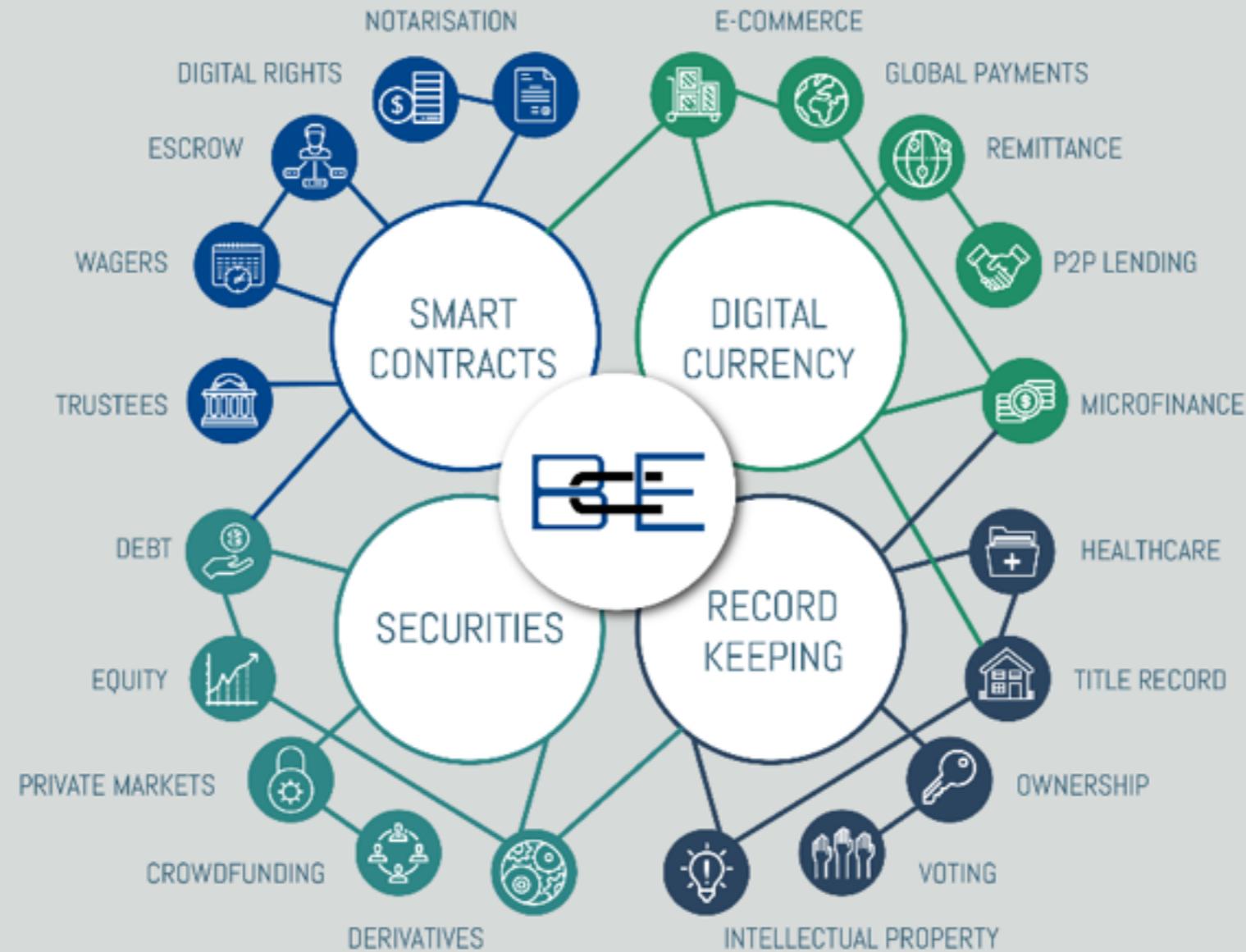


Education Ambassador



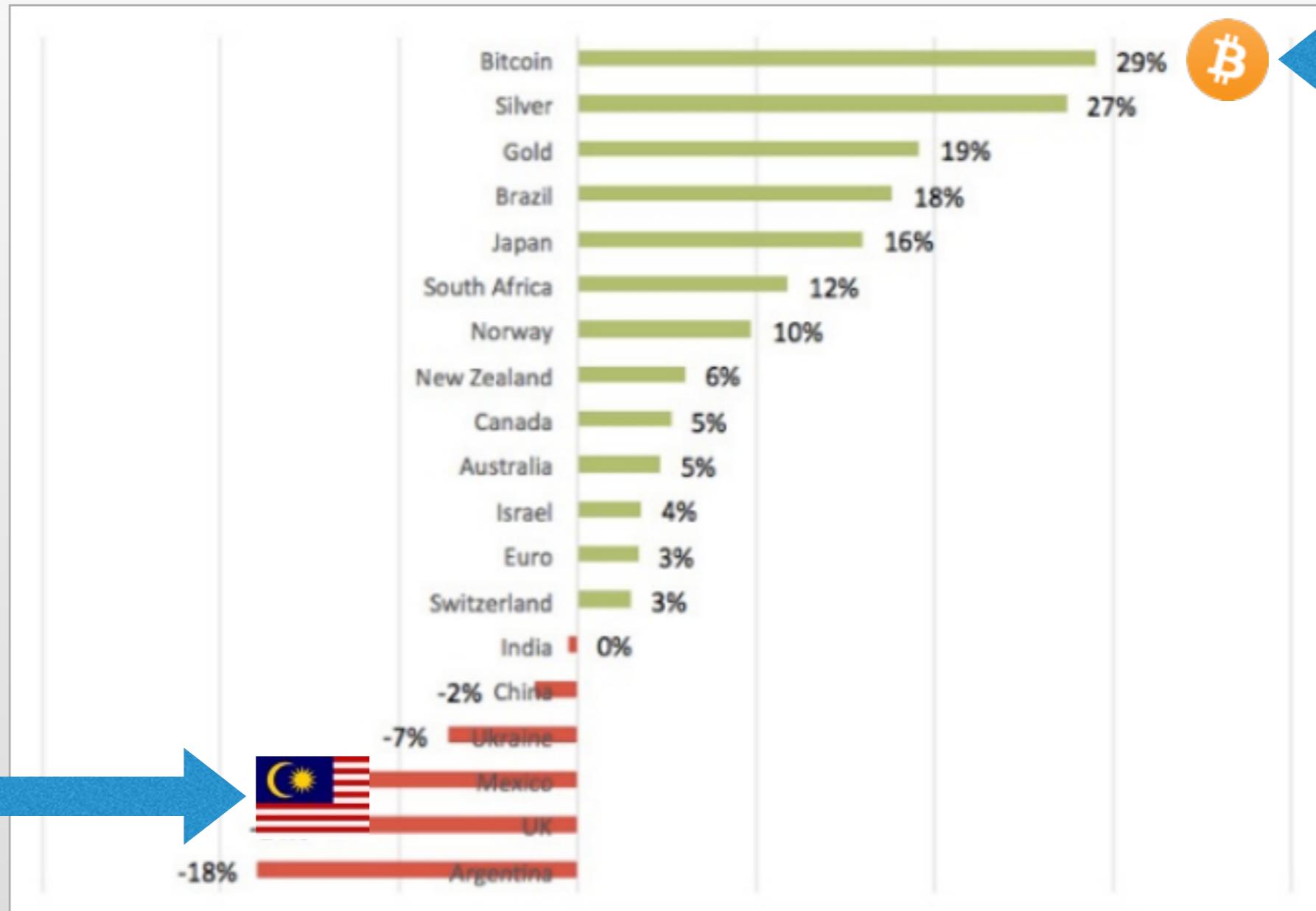
Technology Ambassador

BIG PROBLEMS INVOLVE MULTIPLE PARTNERS & MOVING PARTS



WHERE DO WE (MALAYSIA) STAND ...?

also from the coindesk.com most recent quarterly report - but not the MY part



OUR FIRST CLIENT IS ONE OF SIX LICENSED ECF OPERATORS

ataplus

Dogecoin (Testnet) Blockchain / ATA-Plus V0.0.1 / Datastores / Investments

Credits: 254.00000000 FLUSH LOGOUT

COMMITS

DATASTORES

ISSUERS

COMPANIES

INVESTORS

INVESTMENTS

SECTORS

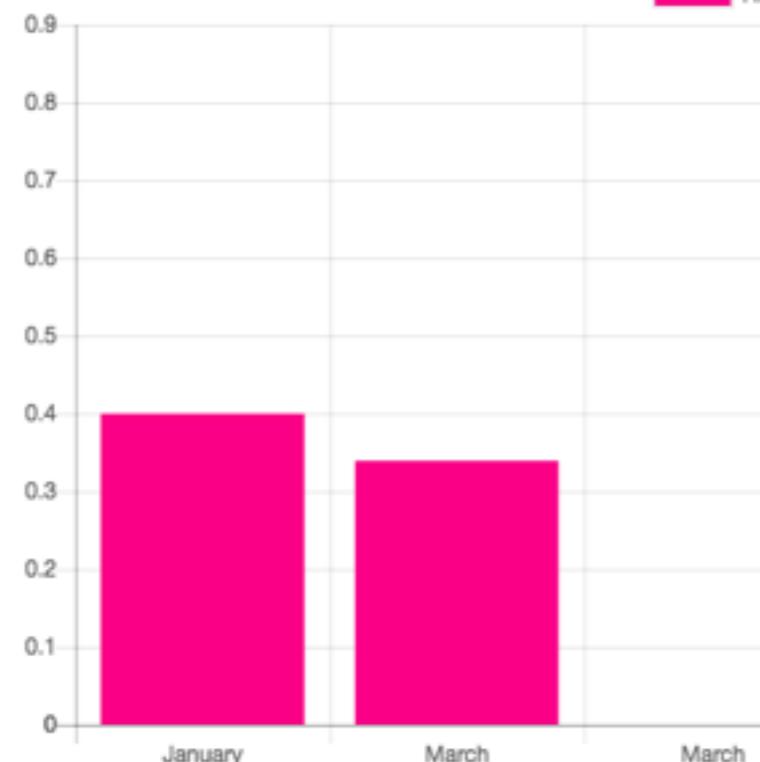
ADD NEW

SCHEMA

DOCUMENTATION

6 Months Sitewide Total Investments

RM Invested (Millions)



“For ECF to flourish, there must be a deep depository of trust and transparency that is frictionless & inclusive. Neuoware’s tech enables us to provide all that and more!”

sort by

Most Recent

search investments

f2583c4bbbc1d7f70fe776ef8de24e3e9131884de2be5ed3365fe72e53fa2177

EDIT

DELETE

SCHEMA

Key

Value

Index: Investment ID [auto]

bf28617205e695439c0dd2285a76d7c1

powered by neuoware



Kyri - Co-Founder & Director
of Licensed ECF Platform

NEM - MALAYSIAN BASED BLOCKCHAIN

		BTC	All Hashing Algorithms	Total	MktCap	Liquidity	Developer	Community	Public Interest	Last 7 Days
Rank	Coin	%		%	%	★	/	%	%	Buy Sell
16	LBRY Credits	53		\$1,477 ▲ 3.310%	139.65	77	208 P 30 M 34 D 107 S 89	41 252 11 278	1157 ▲ 2 0.02 0	8842 ¥ 3394
17	Storjcoin X	52		\$7,572 ▲ 1.319%	19.06	81	137 P 54 M 31 D 443 S 421	41 180 25 29	1200 ▲ 4 0.06 0.2	2688 ¥ 10386
18	BitShares	52		\$10,626 ▲ 1.088%	65.70	71	133 P 58 M 75 D 199 S 90	41 188 30 9	1133 ▲ 3 0.02 0	7979 ¥ 5833
19	NEM	52		\$49,606 ▲ 2.678%	115.26	62	40 P 36 M 30 D 316 S 215	33 82 18 0	171 ▲ 2 0 0	2371 ¥ 3093
20	Lumens	51		\$16,603 ▲ 1.524%	78.61	60	271 P 49 M 64 D 112 S 50	40 68 14 0	789 ▲ 3 0.06 0.2	4970 ¥ 8358
21	Namecoin	51		\$3,526 ▲ 2.633%	29.90	74	132 P 43 M 33 D 91 S 34	41 133 28 292	2571 ▲ 2 0 0	1442 ¥ 3318
22	Vertcoin	50		\$1,528 ▲ 11.306%	27.91	63	81 P 49 M 31 D 40 S 36	46 25 16 0	4070 ▲ 3 0.08 0.6	2612 ¥ 25801

MONEY MATCH FIRST IN MALAYSIA TO USE RIPPLE

Malaysia: MoneyMatch raises \$150k seed from Australia's Kosciuszko for forex platform



Enter Your Email Go

[Subscribe to our newsletter](#)



ETHERSCAN FIRST COMPANY IN MALAYSIA FUNDED BY DCG

Etherscan
The Ethereum Block Explorer

HOME BLOCKCHAIN ACCOUNT TOKEN CHART MISC

LOGIN Search by Address / Txhash / Block / Token GO LANGUAGE

TOTAL SUPPLY OF 88,464,230.97 ETHER
\$10.56 @ 0.01085 BTC/ETH

LAST BLOCK 3104622 (14.40s Avg)
Hash Rate 7,768.31 GH/s

TRANSACTIONS 16160931
Network Difficulty 111.68 TH

14 day Ethereum Transaction History

Blocks View All

- Block 3104622 Mined By Ethpool_2 > 15 secs ago
- Block 3104621 Mined By Ethermine > 27 secs ago
- Block 3104620 Mined By 0x96338149e9f6c26... > 40 secs ago
- Block 3104619 Mined By DwarfPool1 > 44 secs ago

Transactions View All

- TX# 0X8C82912A90EB24422A0DD89... > 15 secs ago
From 0xea674fdde714fd9... To 0xdc17d353b01285...
Amount 1.0045803417014828 Ether
- TX# 0X30803DA432AD0EC50B674EB... > 15 secs ago
From 0xf34a762291e2578... To 0x6fc82a5fe25a5cd...
Amount 0.09972424738776952 Ether
- TX# 0X9F3AEC03CD8978780C11C59... > 15 secs ago
From 0x2e67179261a34b... To 0x44e9bfd5eb0651...
Amount 1.506161 Ether
- TX# 0X69429B51113744361D7EF7D... > 27 secs ago
From 0xea674fdde714fd9... To 0xb2db64a2574811...
Amount 1.0055965023717969 Ether

BANK BLOCKCHAIN

USE CASES

IN BANKS WE TRUST

- ➊ Banks traditionally play three **fundamental** roles:
 - ➊ STORE DEPOSITS
 - ➋ MAKE PAYMENTS
 - ➌ PROVIDE CREDIT

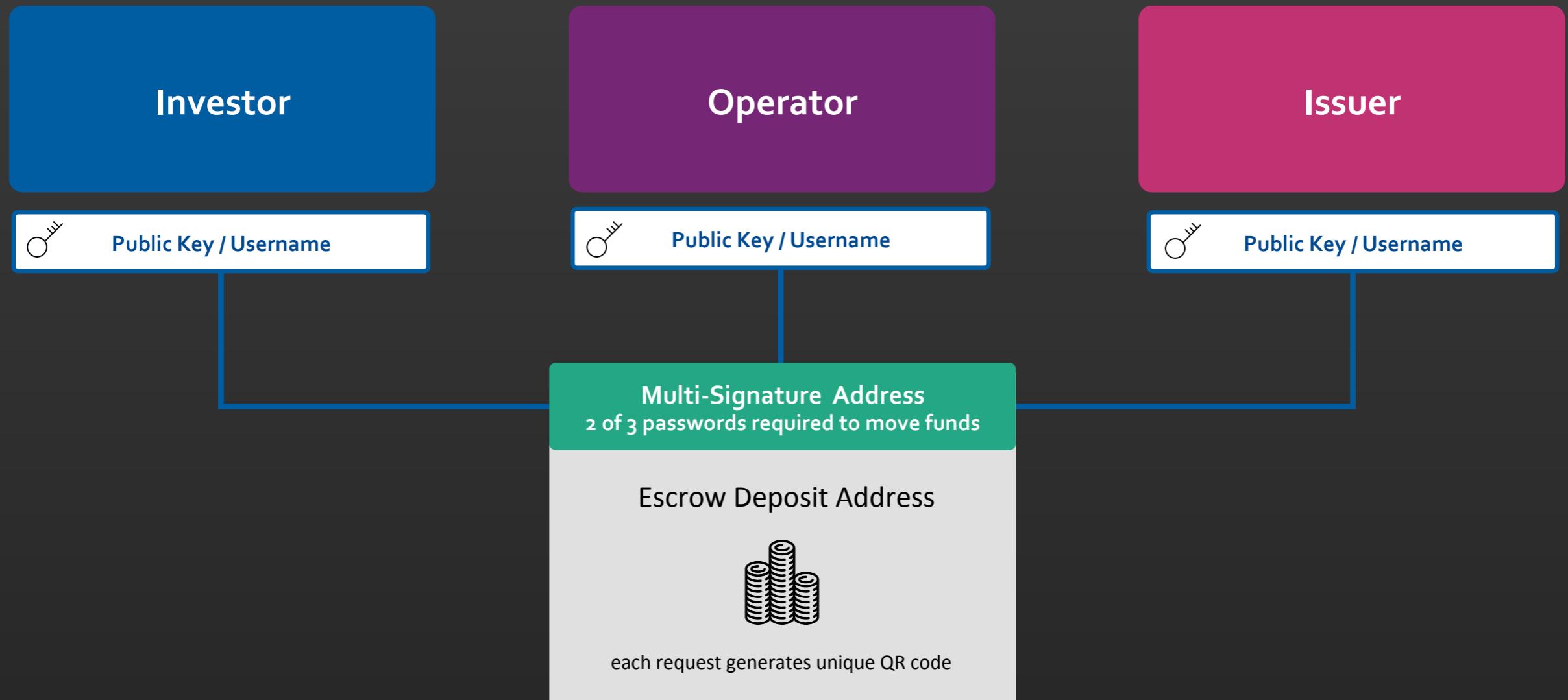
- ➋ Perhaps more importantly, banks are also the custodians of **trust**:
 - ➊ TRUSTEE SERVICES
 - ➋ ESCROW PAYMENTS
 - ➌ LETTERS OF GUARANTEE

BANKING ON THE FUTURE OF BLOCKCHAINS

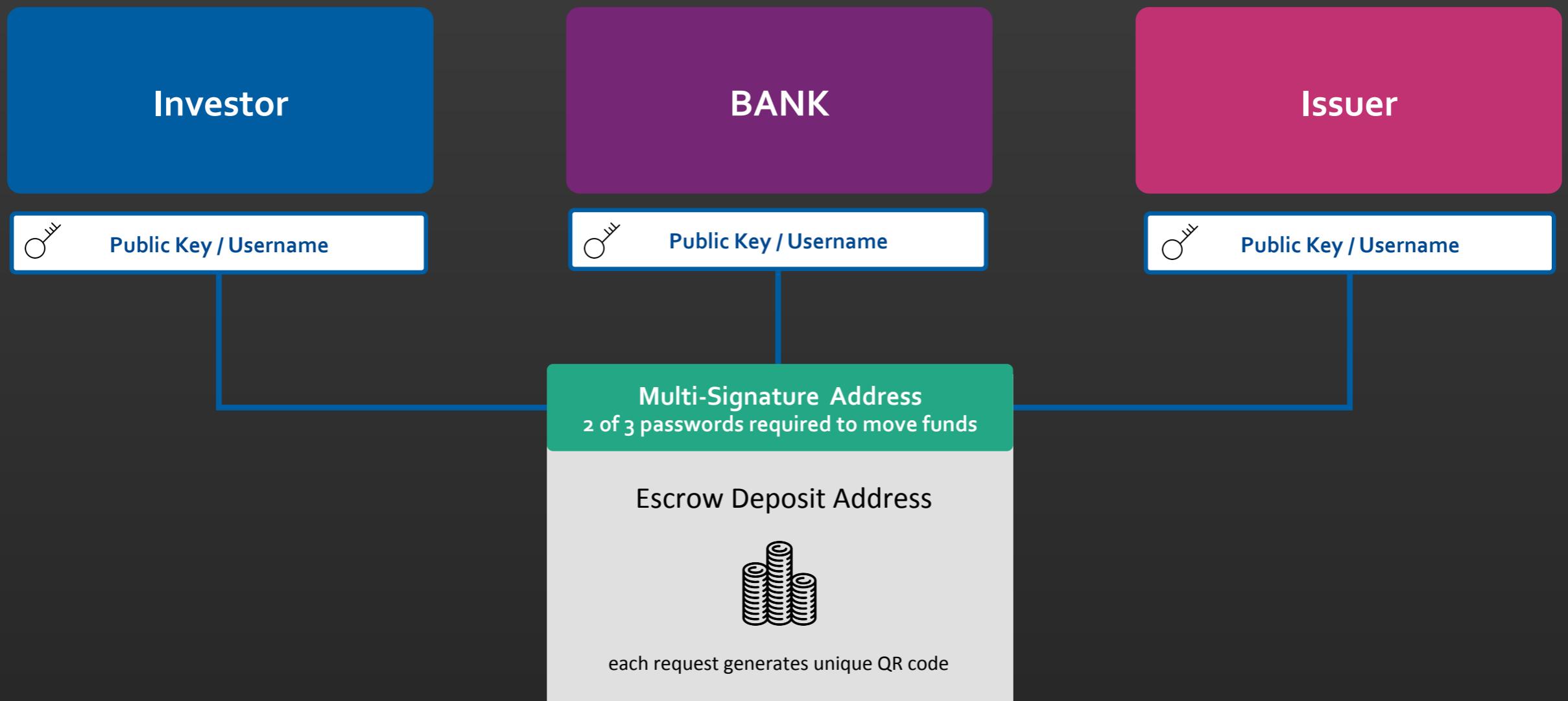
- With banks already KYC and AML compliant, there are no entities more suited to be offering digital currency brokerage and key management
- With the advent of smart-contracts, banking becomes a sequence of code
- Regulation and compliance would be designed as part of the protocol
- If retail and commercial banking processes were 100% based upon blockchains, staffing requirements could be reduced by at least 90%
- Existing internal infrastructure can be replaced by distributed protocols



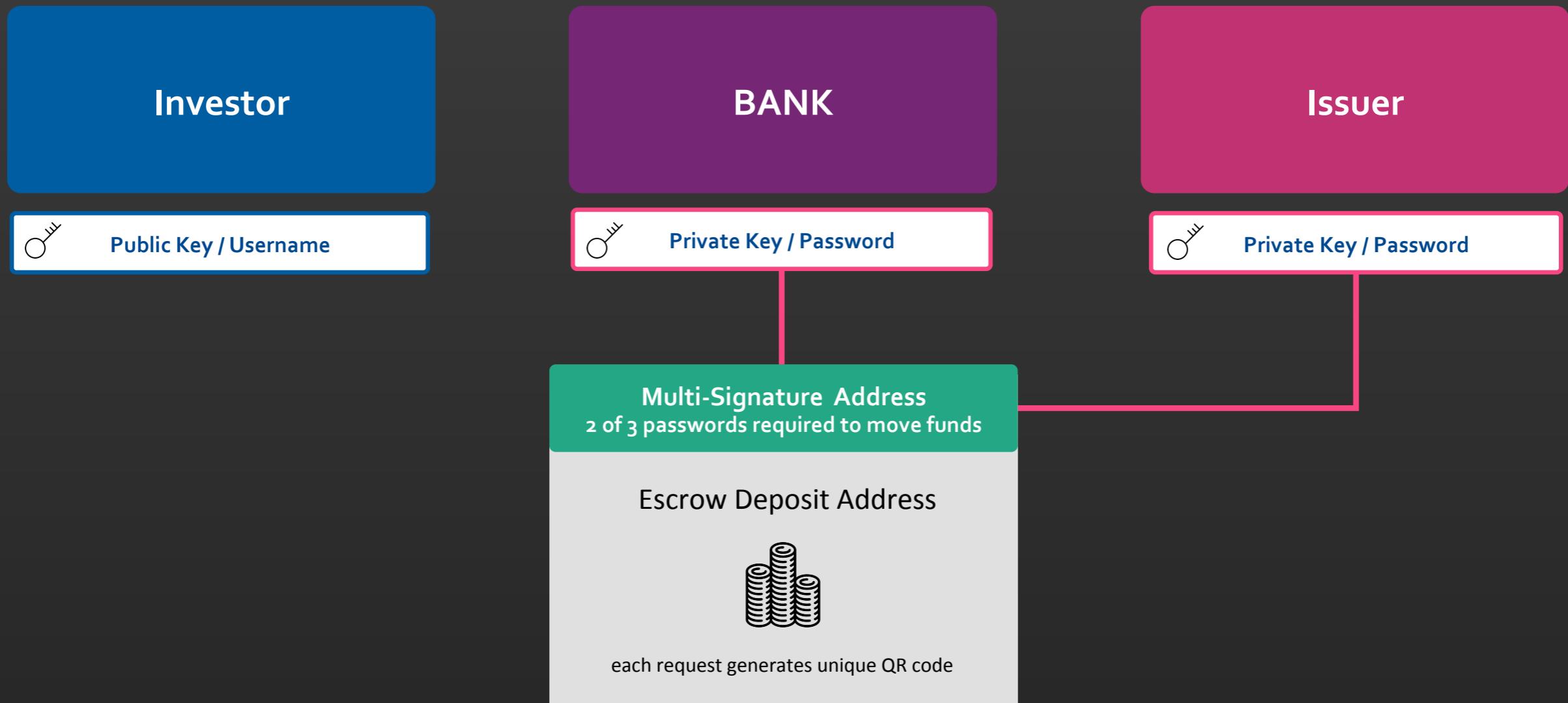
CURRENT MULTI-SIGNATURE BITCOIN SOLUTIONS IN MALAYSIA



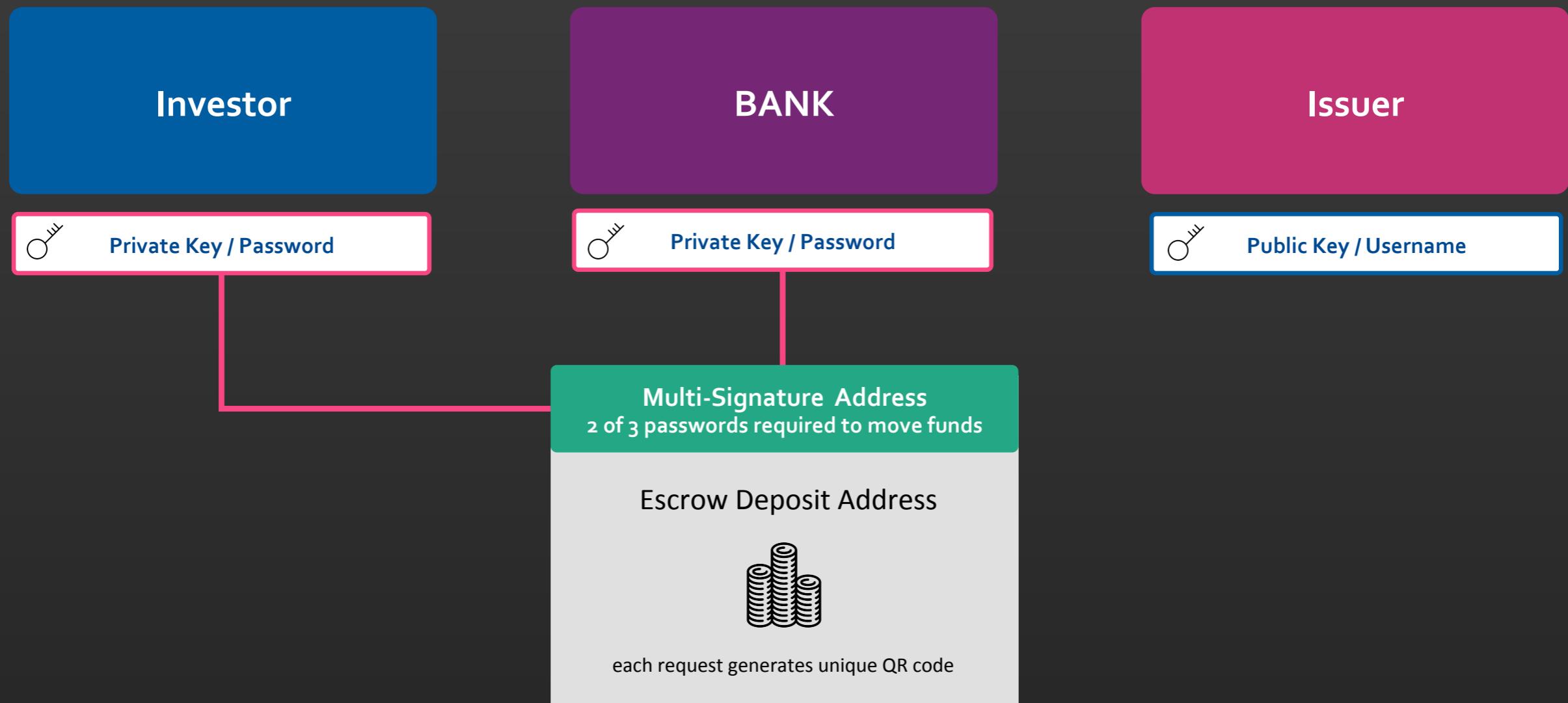
REMOVING THE ECF OPERATOR FROM THE PROCESS



COMPLETING AN EQUITY CROWDFUNDED INVESTMENT PROCESS



REJECTING INVESTMENT OR RETURNING FUNDS TO INVESTORS



CRYPTO TRUSTEES ARE THE FOUNDATION FOR EVERYTHING

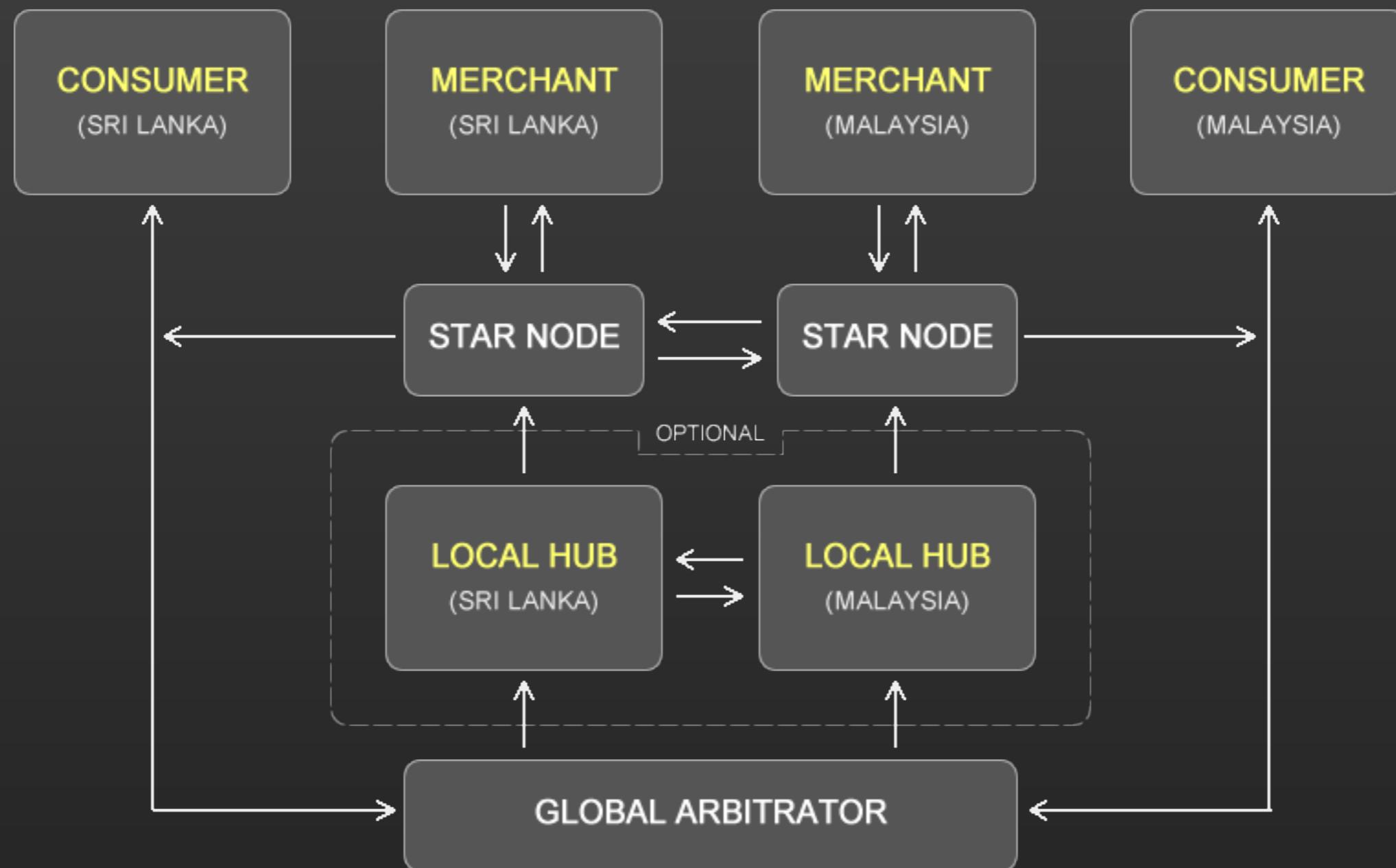
- Unlike financial trustee services, crypto-trustees do not actually move funds as crypto-trustee services are just multi-signature 3rd key services
- Multi-signature solutions are required for a whole host of services:
 - Escrow payments or refundable crypto payments
 - Identity management and KYC processes
 - Distributed governance & user roles
 - Shared data services
- In all cases, those issuing multi-signature processes can:
 - Automatically audit everything
 - Guarantee shared responsibility

LOYALTY REWARDS AS THE IDEAL TEST BED

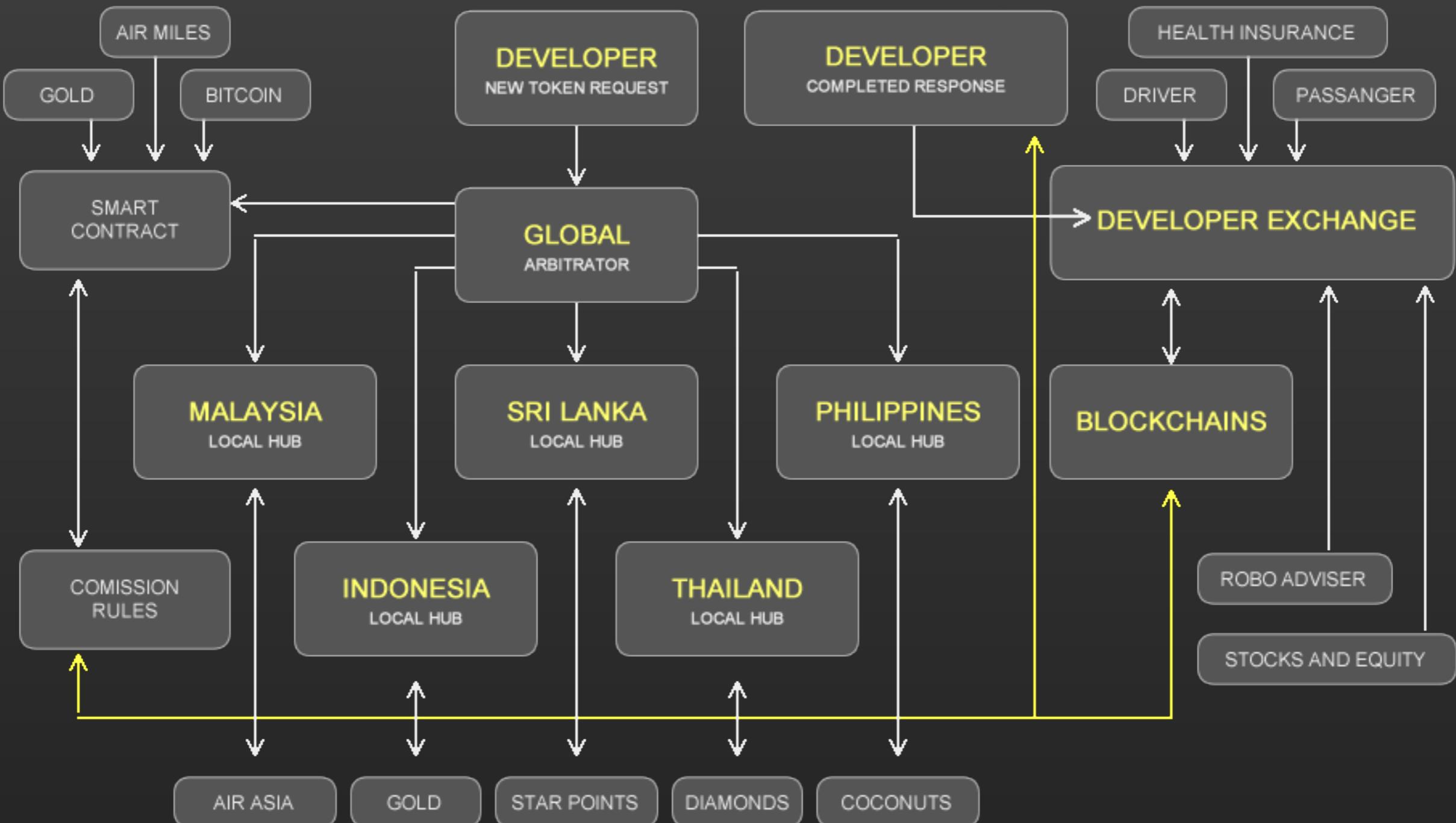
- Provides the opportunity to radically reduce infrastructure costs by outsourcing the hosting and APIs to merchants and (or) partners
- Empower merchants to create their own digital currencies automatically pegged and transferred through a global reserve that you control
- Introduce multi-signature arbitration at local and (or) global levels
- Allow for developers, consumers and merchants to communicate directly
- **Provide an immutable and verifiable record of every event ever...**



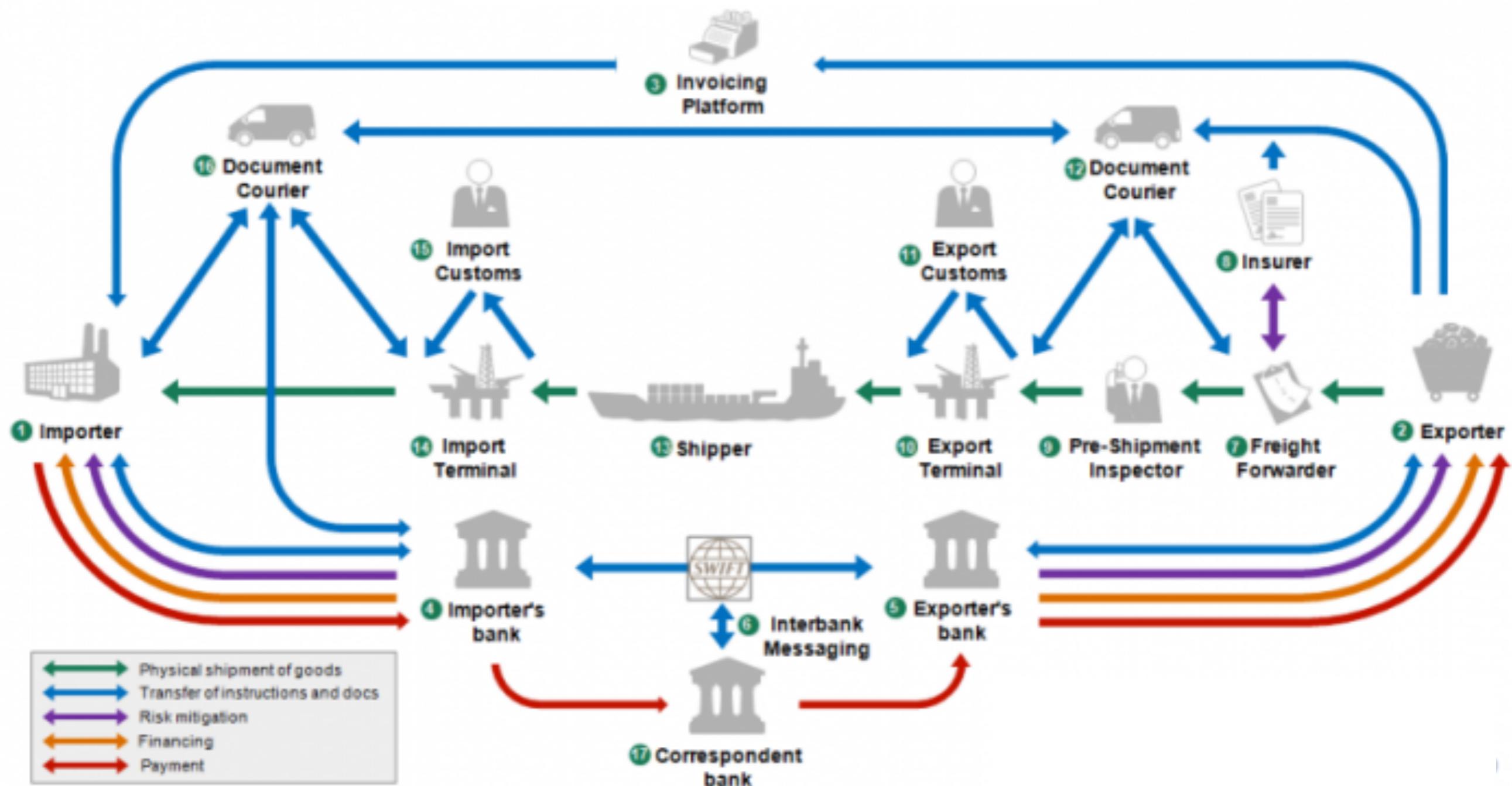
CONVERTING AIR TIME TO AIR MILES



KICKSTART YOUR OWN ECONOMY WITH LOYALTY POINTS



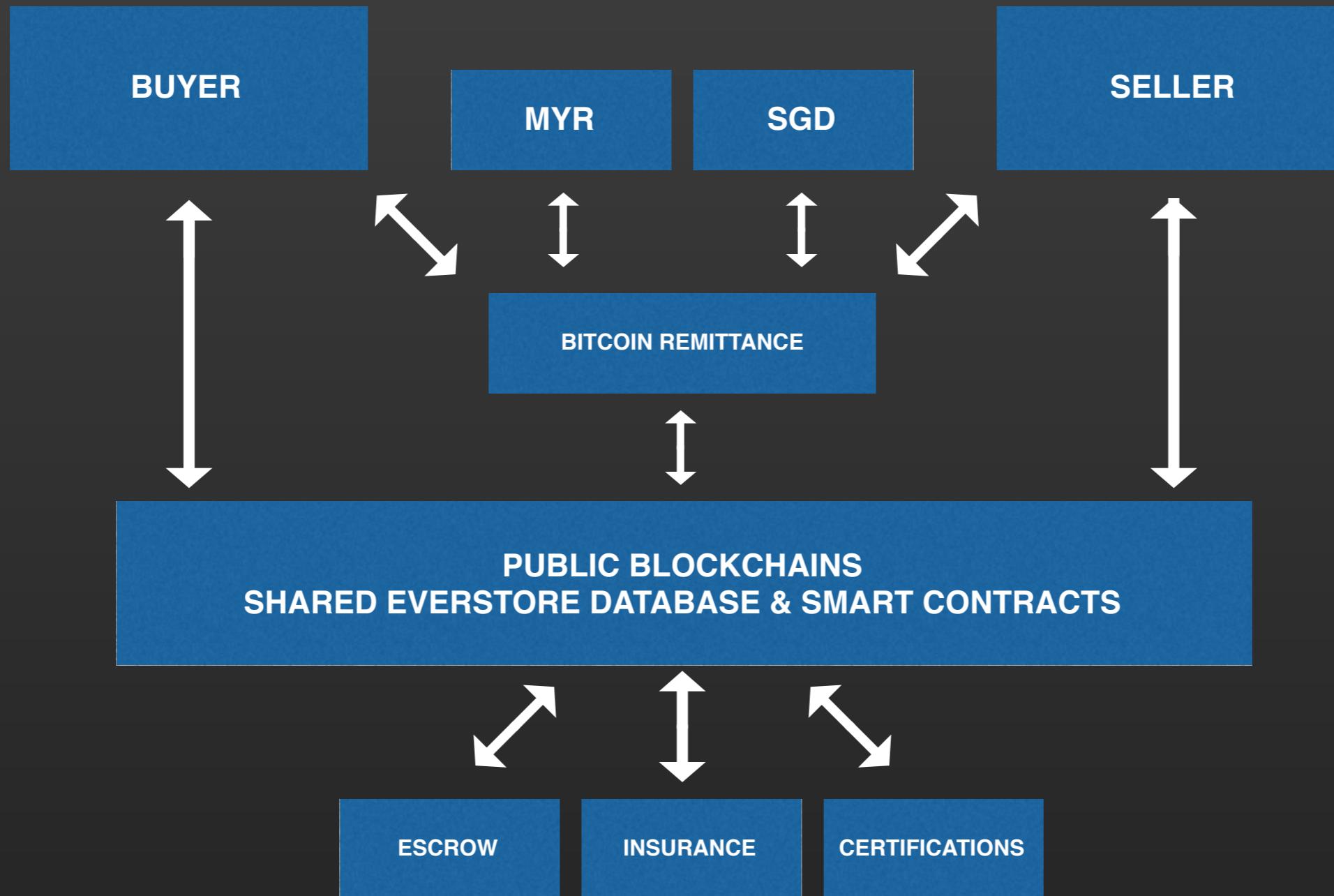
TRADITIONAL SUPPLY CHAINS ARE COMPLICATED



COMMON PROBLEMS WITH THE MAJORITY OF SUPPLY CHAINS

- Multiple entities maintaining multiple copies of the truth within easily compromised closed silos requiring painfully slow & expensive reconciliation
- Time consuming requirements for setting-up third-party financial trustees and physical escrow accounting processes between each transaction
- Lack of automation between checkpoints, processes and sensory inputs
- Excessive use and reliance upon physical paper-trails and certification
- **ALL OF THESE PROBLEMS EXIST DUE TO A LACK OF TRUST**
(if only there was a way they could all use the same source of truth)

SIMPLIFYING SUPPLY CHAINS WITH BLOCKCHAINS



TO SUMMARIZE

- The next IT revolution is already underway and finance is only its first target
- Although the future of Bitcoin is uncertain - blockchains are here to stay
- Distributed ledger technology will continue growing at an increasing pace
- **Like databases, there is no blockchain suitable for every use-case**

WE'VE SPENT TWO YEARS DEVELOPING OUR BASE PROTOCOLS

CORTEX

**DISTRIBUTED
STRUCTURED DATA**

**DECENTRALIZED ID &
AUTHENTICATION**

**KEY LOGISTICS &
BROADCASTING**

**NEUROWARE'S AGNOSTIC PROTOCOLS
DESIGNED TO WORK WITH ANY BLOCKCHAIN
WE DON'T BUILD BLOCKCHAINS - WE UNIFY THEM**

USE-CASES NEUROWARE PARTNERS ARE EXPLORING

BANKING

From AML & KYC cost reductions to reward schemes & reaching the unbanked or general key-signing

HEALTHCARE

Complete and immutable family histories of every related diagnosis and condition available from one key

LOYALTY

Creation of programmable processes and automated auditing trails that increase transparency and efficiency

LEGAL

Cryptographically secure document notarization, copyright protection, and dispute settlement

GOVERNANCE

Increase the accountability of public officials and offer total transparency in voting and elections

LOGISTICS

Tracking of shipping cycles and provenance systems that autonomously verify actions

GAMING

Share digital assets between an entire network of games, or use the blockchains to create immutable persistent open-worlds

ASSETS

Track possession of your property in the digital economy by creating, managing, storing, or sharing multiple asset classes

INSURANCE

Integrated insurance and medical services can be intelligently designed to quickly and contractually settle claims with cryptographically

EDUCATION IS THE MOST **IMPORTANT** COMPONENT

“Having finally seen Cortex in action, I can safely say these guys have something truly special on their hands, my only disagreement is that they should be based in Singapore!”

“Neuroware have been our ‘go to’ guys with respect to blockchains and critical in raising the understanding of distributed ledgers for our senior leadership teams and partners”

“Neuroware have consistently been our key consultants with regards to blockchain technology. Their participation provided us with use cases that weren’t first obvious”



Anson Zeal - CEO
Bitcoin Remittance Company



Amran Hassan
Head of Innovation



Max Tiong
Head of FinTech

THANK YOU

NOW IS THE TIME TO QUESTION THINGS

LEARN MORE ABOUT



neuroware

<http://neuroware.io>