A JOURNEY IN CRYPTO

INTRODUCTIONS

- Jennifer Arcuri, Entrepreneur, Author & Investor.

- Matthew Hickey, Founder, Author & Hacker.

- Cybersecurity, open-source, XRPL and Web3!

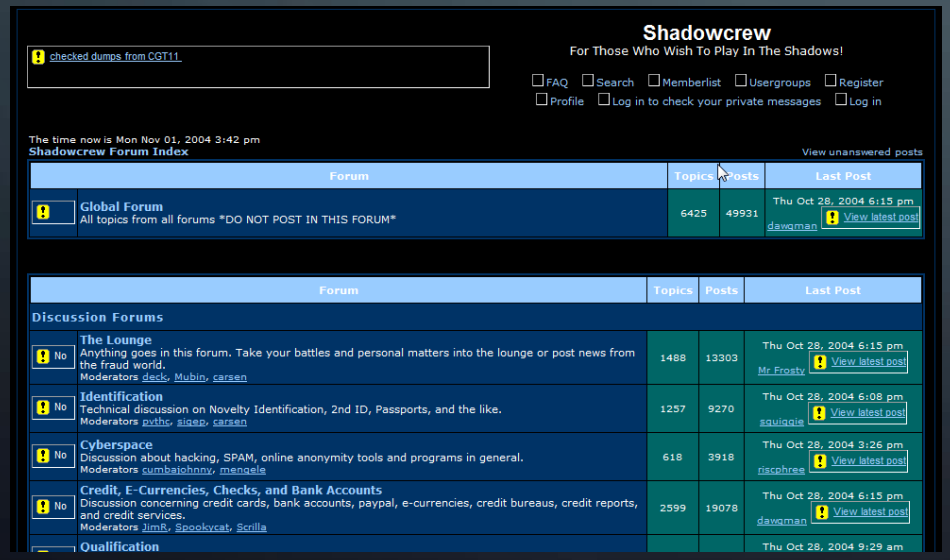
CYBER, MONEY & SOME HISTORY…

In the early 2000's, cyber-space grew into "virtual worlds."

MMORPG's created "value" for in-game currencies and exchanges.

Underground markets used eGold, Western Union & "cash" systems

Bitcoin whitepaper is posted and a revolution begins…

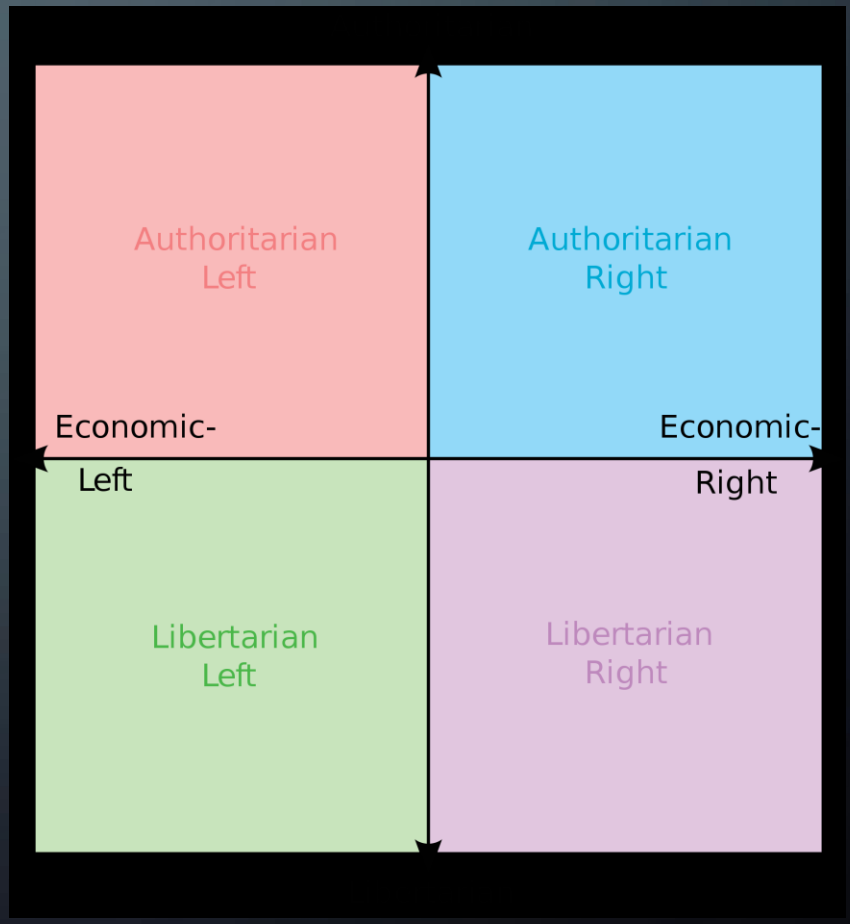


BLOCKCHAINS AREN'T JUST MONEY…

- Blockchains are a new computer paradigm
- De-centralized Trust
- Peer-2-Peer
- Privacy orientated
- Secured with Cryptography
- Censorship Resistant
- Open World Order vs New World Order
- Machine-Aided Consensus
- Increased Connectivity
- Decreased Overheads
- Web3 is changing Tech

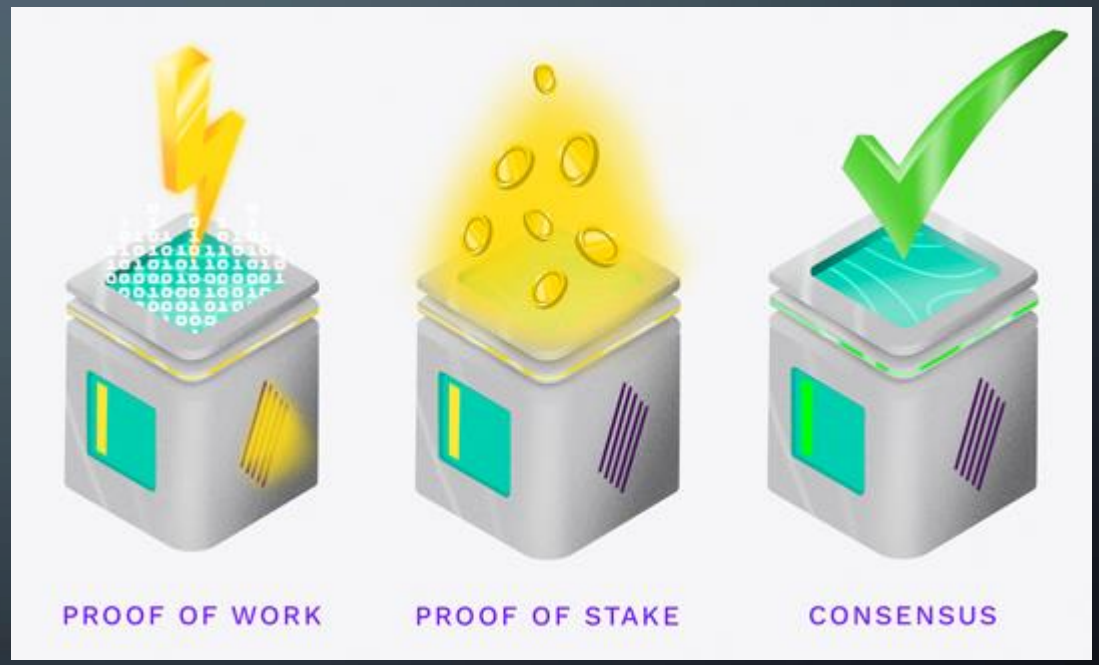
YOU SHAPE TECH!

- Does technology influence society or does society influence technology?
- Our understanding of blockchains and dreams of what it will achieve is often tied to political ideologies and societal views
- Crypto-Anarchist's often believe in proof-of-work, no authority.
- Crypto-Libertarian's seek liberty and market use, minimal to no authority.
- When evaluating technology, our individual bias shapes our view of what the technology can achieve.



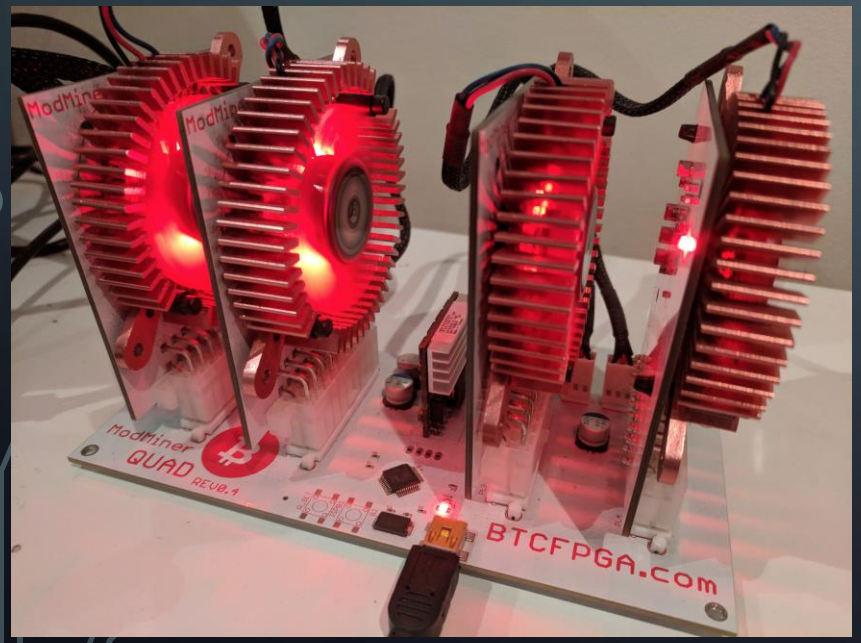
BLOCKCHAINS ARE IMMUTABLE STORES OF DATA

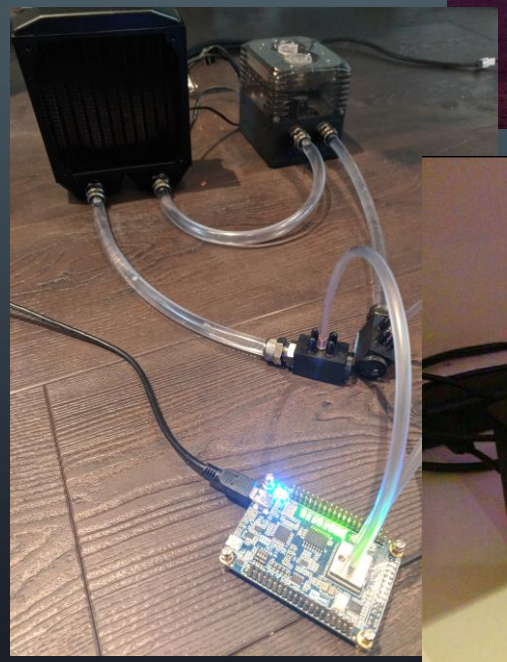
- Decentralized requires consensus
- Proof-of-work (concept) – 51% attack
- Proof-of-stake (VC capitol)
- Byzantine Consensus (Software!)

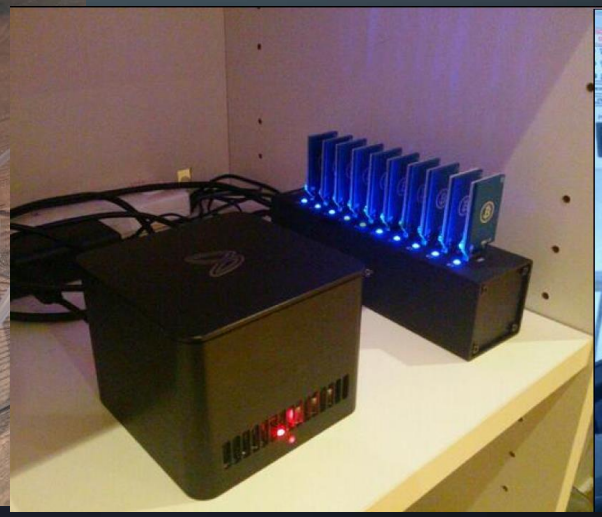


LIAN LI
SAMSUNG

eth0S


ModMiner
QUAD REV0.4
BTCFPGA.com

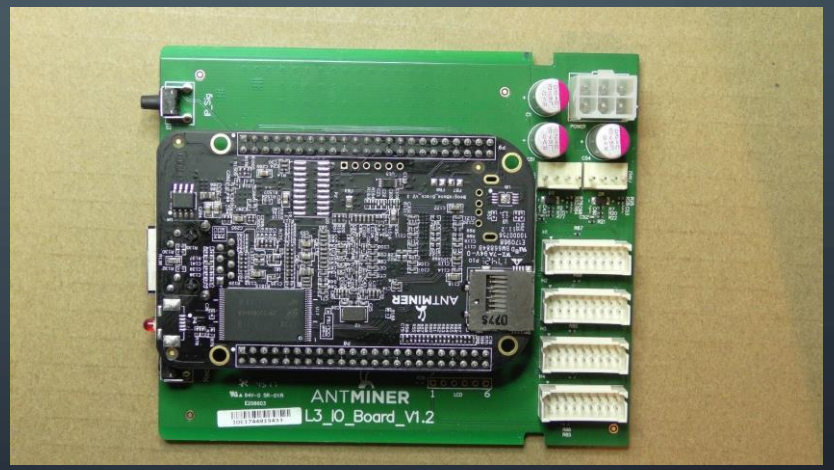


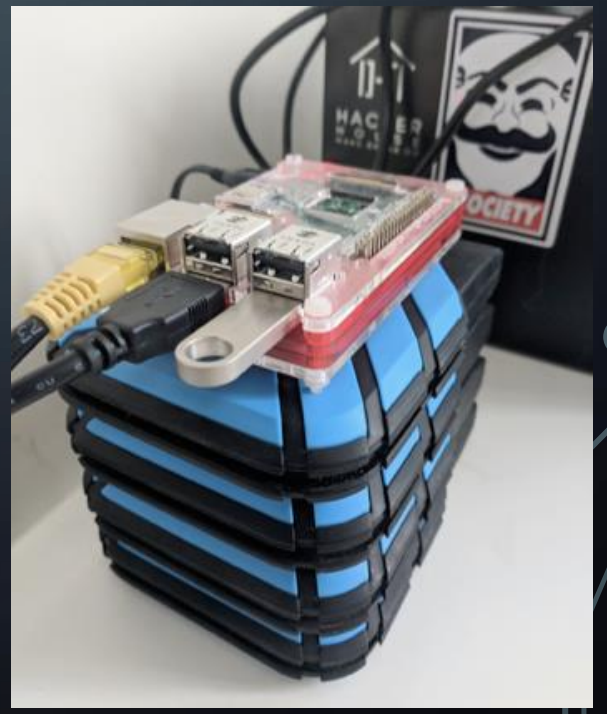


ORICO

zeus
Pure Raising Power
RM1000

HACKER


ANTMINER
L3_I0_Board_V1.2

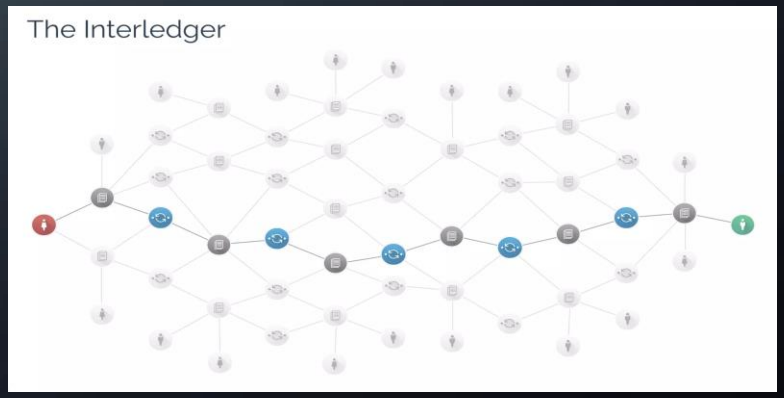


RIPPLE & XRP – SOLVING A PROBLEM.

- It solved a problem, the problem was improved inter-banking messaging.
- Blockchain's begin first practical life as financial service products
- Ripple was the fastest, most eco-friendly, provides bridge currencies and the ability to run private side-chains. Earns itself the nickname "the bankers coin"
- Upgrading inter-payment processing systems, like SWIFT.
- XRP is a bridge token, allowing exchange of two currencies and payments
- Institutions are the first target market for blockchains.
- Institutions at risk of becoming obsolete, innovate on blockchain.

BRIDGE TOKEN & INTER-LEDGER PROTOCOL (ILP)

- 80% of Banks exploring “programmable” smart money.
- Interoperability will be required for CBDC across individual markets.
- XRP as a bridge token provides neutrality for CBDC liquidity and transfers.
- XRP partnerships enable CBDC and provides interoperability through ILP.
- CBDC’s are the most interesting innovation in payment, according to VISA.



NFT'S / ASSETS / METADATA

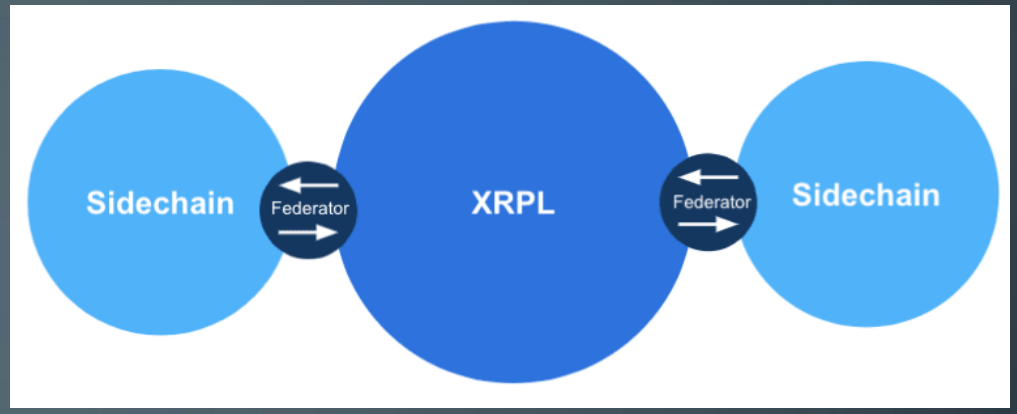
- Sale, transfer and ownership of assets.
- Non-fungible tokens added in XLS-20.
- It's more than just putting sombrero's on giraffe's … but that's sure fun too!

- Ownership of unique assets with digital proof of ownership
- Enabling new in-game functionalities.
- Bringing innovation and disruption to gaming and collectors markets.
- Expands "cyberspace" to a "metaverse" using Virtual Reality and Augment Reality

SMART CONTRACTS, HOOKS & EVM.

- Blockchains can have “programmable” functionality.
- Ethereum “world computer” introduces a byte-code based “virtual machine”
- Send payment to address, program runs, calculates and sends tokens, returns result.
- The “world computer’ is approximately as powerful as a Raspberry Pi.
- Smart contracts can perform functions, evaluate statements and perform operations with tokens on blockchains.
- XRPL is under development as hooks (not yet on main), also has EVM side-chain!

SIDECHAINS



- Ripple are working on providing “federated” sidechains, which will allow federated sidechains from institutions to communicate together as a collective.
- Private sidechains allow institutions to create a private ledger, by bringing federation to sidechains, groups of institutions can work together.
- Sidechains can be bridged and allow for disparate blockchains to interoperate.
- You can create your own blockchain for your purposes and it can operate anyway you choose.
- You can then interoperate through Ripple technologies to expand it’s reach.
- Enabling Decentralized Finance (DeFI) on XRPL.

DECENTRALIZED NETWORKS & AUTHORITY

- Web3 will require a trust-based system for authority on-chains.
- Buying a Starbucks Web3 product or is it an imposters?
- Fully decentralized systems can loose benefits from having some form of centralized authority, refunds, complaints, errors, hacks and losses are risks passed to the user. Forks occur in disputes.
- What is the value in retaining obsolete designs? Bitcoin, Bitcoin Cash, Eth, Eth Classic… forks and changes. There is no fork of XRP, only upgrades.
- An authority can be decentralized itself as with the Validator node model provided by Ripple.
- XRP validator nodes solve some Web3 problems with it's decentralized "human trust model" (e.g. proof-of-association), validators "vote" on changes to upgrade and amend the network, act as authority. A key feature of Ripple's success and agility to incorporate new innovations in Blockchain, such as NFT (XLS-20) or amend it's cryptographic functions in future.
- There is another technology that we use as a centralized authority on decentralized systems to enable commerce today - TLS (SSL), which powers our ability to conduct commerce in Web2.0.
- Ripple provides foundation blockchain for Web3 efficiently with authority through validator and consensus. XRPL is provided for open-source technologists and developers to engineer on an efficient foundation.

AN EXAMPLE, DISRUPTION WITH A BLOCKCHAIN.

- Amateur radio enthusiasts record 2-way communications in a logbook.
- They cryptographically sign these records and submit to a central bureau.
- The records are tallied up and awards are issued based on those records.
- In this model, our bureau is an “institution” with “overheads” and “costs”
- By replacing the “institution” with a blockchain, the “overheads” are reduced and the “cost” decreased.
- The “institution” could issue the awards by validating the records on a blockchain with a smart contract
- Amateur radio is volunteer driven for experimentation, however this disruption model can apply to any “institution” where “2-way” transactions must be verified, validated and recorded for action.

EXAMPLE, SOFTWARE LICENSING.

- Software licensing protections use a 2-way communication between a service provider and a customer.
- The service provider, authorizes or “licenses”, software for use and must issue a license to use software – which is then verified in *some* way
- There are many implementations of software licensing, activation servers take a user license request, a cryptographic token and verify if the license is valid.
- Activation servers could be replaced with a blockchain, the software license can be sent as a transaction, verifying that the user holding a token in a wallet is authorized to use the software.
- Supply chains of all types become more efficient and reduce costs through adoption of blockchain

DISRUPTING MARKETS WITH INNOVATION

Tech

A Hacker Was Selling a Cybersecurity Exploit as an NFT. Then OpenSea Stepped In

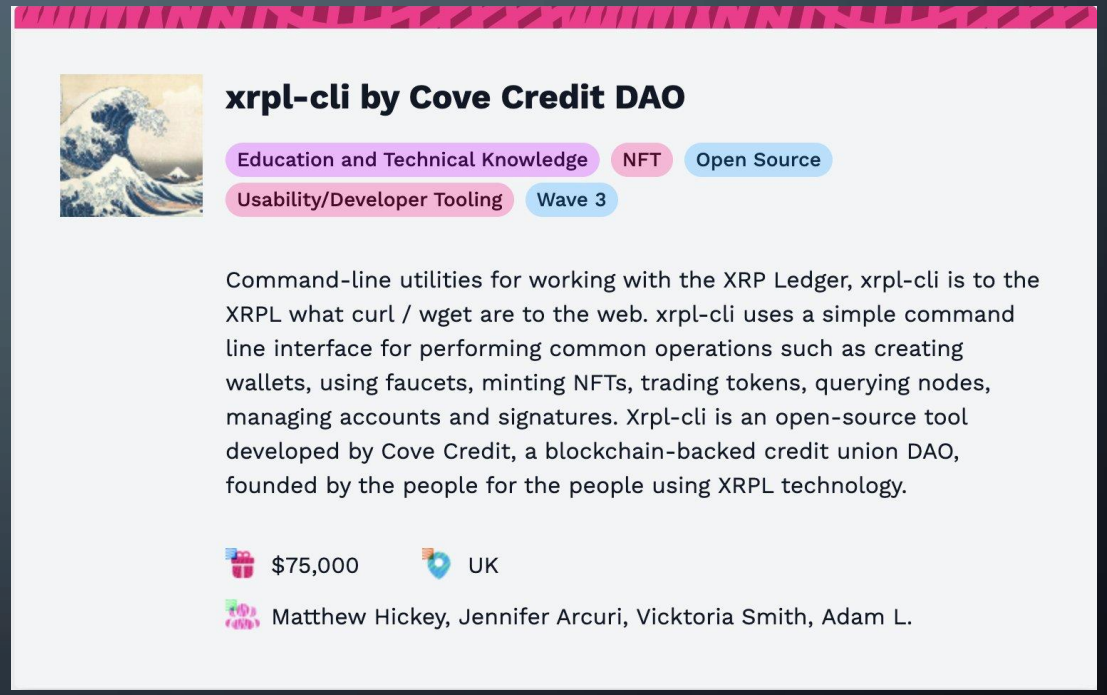
A dark twist on NFTs: a denial-of-service zero-day attack sold with full rights of ownership transferred to the successful bidder.

By Benjamin Powers Mar 9, 2021 at 3:04 p.m. CST Updated Sep 14, 2021 at 7:23 a.m. CDT

- The future of innovations in blockchain will go beyond financial services and markets - server-less, decentralized networks, sovereignty of user data, identity and access will re-engineer the web and change institutional powers that exist today.
- Ripple is well positioned to benefit from it's efficient payment solution, bridges and ILP. The XRPL is a gift from Ripple for open-source technology and builders of Web3.

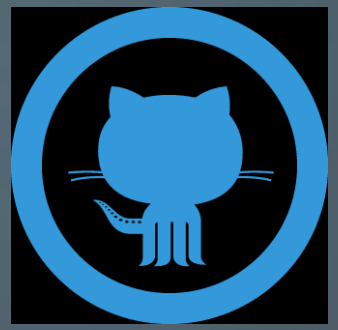
DECENTRALIZED AUTONOMOUS ORGANIZATIONS

- Entire business functions on-chain
- Transparent
- Disparate geographical locations
- Programmable Businesses
- Users and members form communities
- Enables “bedroom” unicorn startups
- We build open-source technology



```
developer@covecredit:~/src/xrpl-cli$ python3 mintfile.py testimage.png
Attempting to fund address rFkoqHe3eSuZ83PiAgFbQNP9S6jN1m4ay
Faucet fund successful.
public_key: EDD3940DCDF50410664B6A5BCC1EFAB75D594B44278EEFFE6FDE07CBD5F7868346
private_key: -HIDDEN-
classic_address: rFkoqHe3eSuZ83PiAgFbQNP9S6jN1m4ay
sEdVNHzLnMSHFgt7eCst1xkRtrWc3rN
AccountInfo(method=<RequestMethod.ACCOUNT_INFO: 'account_info'>, id=None, account='rFkoqHe3eSuZ83PiAgFbQNP9S6jN1m4ay', ledger_
hash=None, ledger_index='validated', queue=False, signer_lists=False, strict=True)
response.status:  ResponseStatus.SUCCESS
{
    "account_data": {
        "Account": "rFkoqHe3eSuZ83PiAgFbQNP9S6jN1m4ay",
        "Balance": "10000000000",
        "Flags": 0,
        "LedgerEntryType": "AccountRoot",
        "OwnerCount": 0,
        "PreviousTxnID": "952B86916412E24F43F00DCFB895C0F52E897A10F946620DE1D74FA4AD4066E2",
        "PreviousTxnLgrSeq": 8048891,
        "Sequence": 8048891,
        "index": "02E37AA2C01A9FF4726AD33D6129C407EF82B40F06D16A7DB00F771E0A955DDD"
    },
    "ledger_hash": "CD7396FEF0C2888B12FB117400925C1D84AC068DB15C388472365AEB3762ZD63",
    "ledger_index": 8048892,
    "validated": true
}
AccountNFTs(method=<RequestMethod.ACCOUNT_NFTS: 'account_nfts'>, id=None, account='rFkoqHe3eSuZ83PiAgFbQNP9S6jN1m4ay', limit=N
one, marker=None)
response.status:  ResponseStatus.SUCCESS
{
    "account": "rFkoqHe3eSuZ83PiAgFbQNP9S6jN1m4ay",
    "account_nfts": [],
    "ledger_current_index": 8048893,
    "validated": false
}
your ipfs file is available at ipfs://QmRu9yu82KCZWneNhDr88aqRHMVH7KnU5hzr5bR46dLHR5
```

```
developer@covecredit:~/src/xrpl-cli$ python3 xrpl-cli.py -n2 -g -t https://github.com/covecredit/xrpl-cli/testimage.png
Attempting to fund address rPY9xgpLzXEYaSoKjStzcurutroEhAPQcM
Faucet fund successful.
Your secret seed is: sEdVYttrNobUbaNzk7vnb3UTJ7Vfbo9
NFTokenMint(account='rPY9xgpLzXEYaSoKjStzcurutroEhAPQcM', transaction_type=<TransactionType.NFTOKEN_MINT: 'NFTokenMint'>, fee=
None, sequence=None, account_txn_id=None, flags=0, last_ledger_sequence=None, memos=None, signers=None, source_tag=None, signi
ng_pub_key='', txn_signature=None, nftoken_taxon=0, issuer=None, transfer_fee=None, uri='68747470733a2f2f6769746875622e636f6d2
f636f76656372656469742f7872706c2d636c692f74657374696d6167652e706e67')
True
NFTokenMint(account='rPY9xgpLzXEYaSoKjStzcurutroEhAPQcM', transaction_type=<TransactionType.NFTOKEN_MINT: 'NFTokenMint'>, fee=
'10', sequence=24145823, account_txn_id=None, flags=0, last_ledger_sequence=24145847, memos=None, signers=None, source_tag=Non
e, signing_pub_key='ED23037C0B4ACD8B12AEE37B5BBA9E36092D33B3F55CB90DE4487D069D1C9F24D3', txn_signature='8B22EB8E0A13C2BB77851B
02C4329656A93F1A9F490F6629CE3CC187D2D5D8D59A6BB5A7FB2480E56D658C0B89D887812F29777CE7CF5CAE204D936FD5585004', nftoken_taxon=0,
issuer=None, transfer_fee=None, uri='68747470733a2f2f6769746875622e636f6d2f636f766563726564697f7872706c2d636c692f74657374696
d6167652e706e67')
response.status:  ResponseStatus.SUCCESS
```



xrpl-cli in development
https://github.com/covecredit

```
developer@covecredit:~/src/xrpl-cli$ python3 xrpl-cli.py --help
usage: xrpl-cli.py [-h] [-b BRAINWALLET] [-a ACCOUNT] [-s SECRET] [-g [GENERATE_WALLET]] [-d [DELETE]] [-l [LISTNFT]]
                   [-t TOKENURL] [-f FLAGS] [-i TOKENID] [-m AMOUNT] [-x TOKENOFFERINDEX] [-o OWNER] [-n NETWORK]

A command-line interface for working with the XRPL ledger

options:
  -h, --help            show this help message and exit
  -b BRAINWALLET, --brainwallet BRAINWALLET
                        use a brain wallet passphrase
  -a ACCOUNT, --account ACCOUNT
                        classic account address
  -s SECRET, --secret SECRET
                        seed key
  -g [GENERATE_WALLET], --generate_wallet [GENERATE_WALLET]
                        generate a wallet from faucet
  -d [DELETE], --delete [DELETE]
                        delete wallet and send balance to destination
  -l [LISTNFT], --listnft [LISTNFT]
                        list nft's on account
  -t TOKENURL, --tokenurl TOKENURL
                        mint a NFT token url
  -f FLAGS, --flags FLAGS
                        NFT flags
  -i TOKENID, --tokenid TOKENID
                        token id
  -m AMOUNT, --amount AMOUNT
                        amount
  -x TOKENOFFERINDEX, --tokenofferindex TOKENOFFERINDEX
                        tokenofferindex
  -o OWNER, --owner OWNER
                        owner
  -n NETWORK, --network NETWORK
                        use with list_for server list
```

Q&A?

THANK YOU LINQTO FOR LISTENING

https://cove.crypto (coming soon!)
https://twitter.com/covecredit
https://github.com/covecredit

https://hacker.house (cybersecurity)