BigchainDB:
A Scalable Blockchain Database

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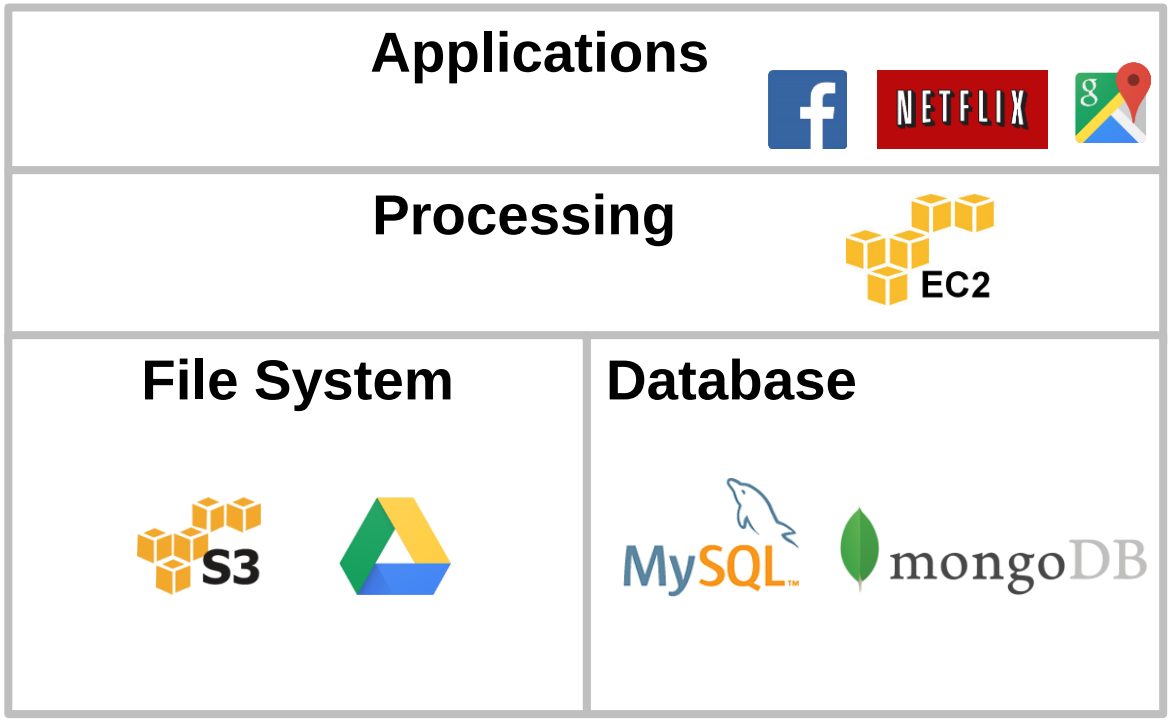
BIGCHAINDB

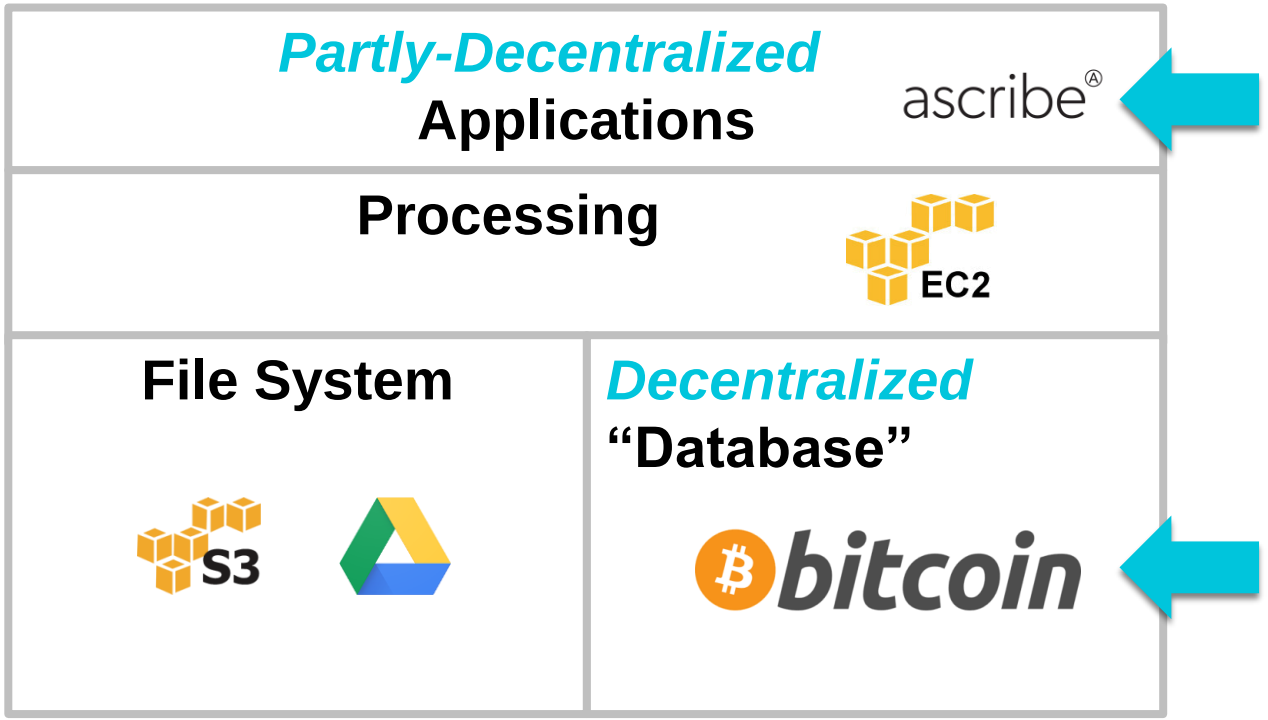
The modern cloud application stack



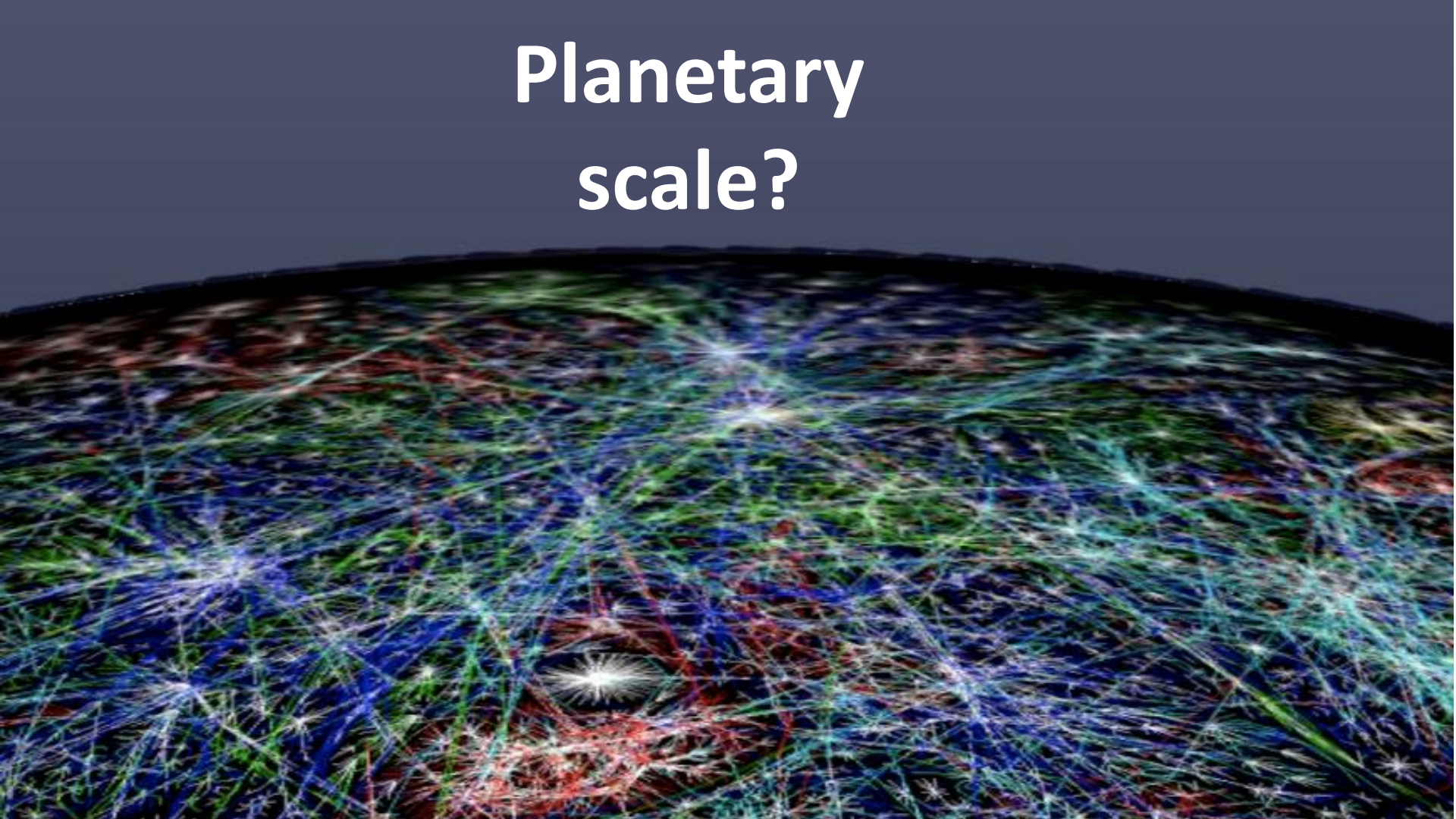
Along came Bitcoin…

“Magic Internet Money”

The modern cloud application stack – with Bitcoin



Planetary scale?



Netflix uses 37% of Internet bandwidth

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Using a modern distributed database

centralized

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Using a modern distributed database

centralized

Can we remove the “centralized”?

How to Decentralize Big Data

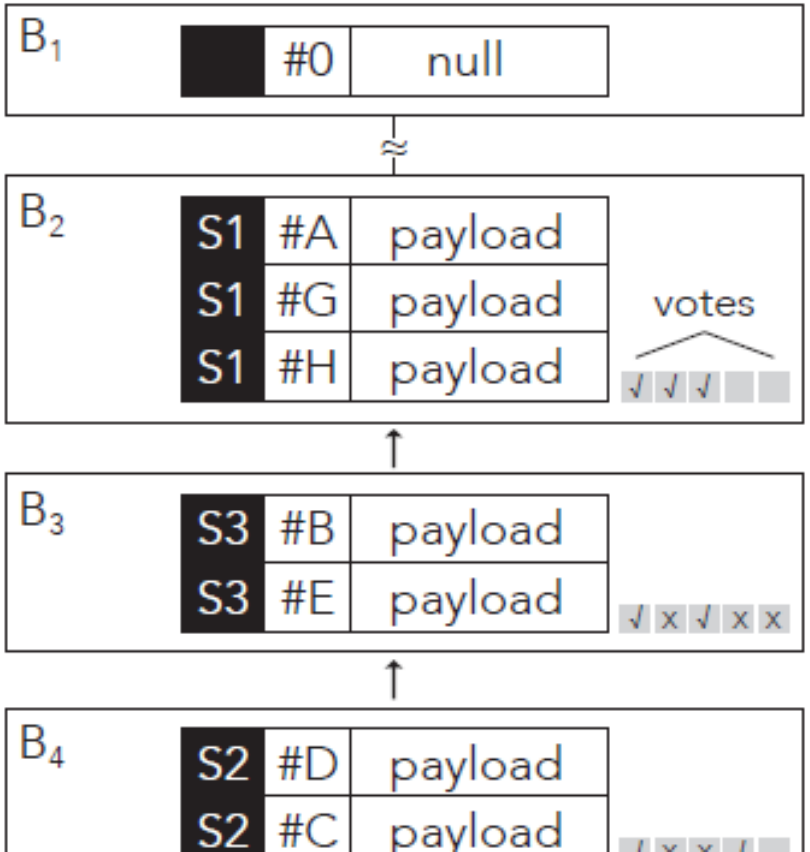
- Basically, each DB node is a federation node
- Also add immutability, assets

Best of Big Data

- Scale, queries

And best of blockchain

- Decentralized, immutable



5.2. Create a Digital Asset

```
from bigchaindb import crypto

# Create a test user
testuser1_priv, testuser1_pub = crypto.generate_key_pair()

# Define a digital asset data payload
digital_asset_payload = {'msg': 'Hello BigchainDB!'}

# A create transaction uses the operation `CREATE` and has no inputs
tx = b.create_transaction(b.me, testuser1_pub, None, 'CREATE', payload=digital_

# All transactions need to be signed by the user creating the transaction
tx_signed = b.sign_transaction(tx, b.me_private)

# Write the transaction to the bigchain.
# The transaction will be stored in a backlog where it will be validated,
# included in a block, and written to the bigchain
b.write_transaction(tx_signed)
```

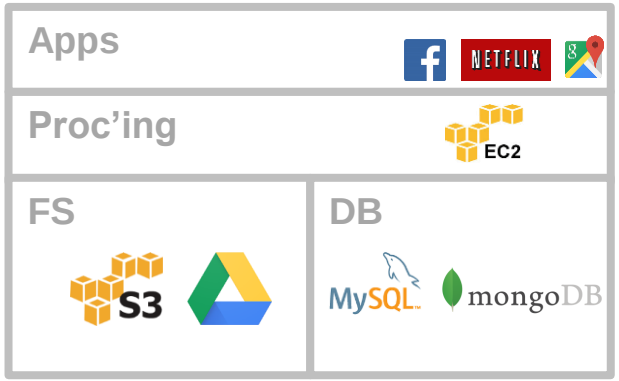
5.3. Read the Creation Transaction from the DB

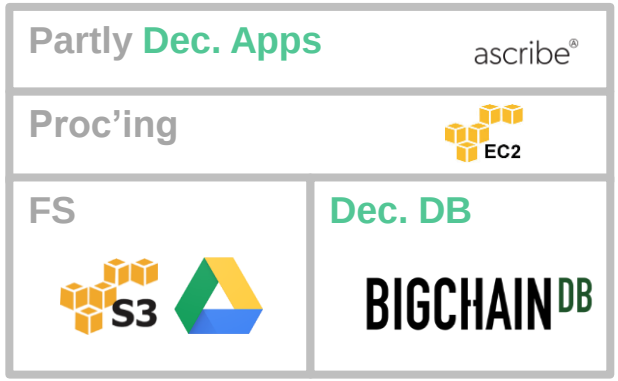
```
# Retrieve a transaction from the bigchain
tx_retrieved = b.get_transaction(tx_signed['id'])
tx_retrieved
```

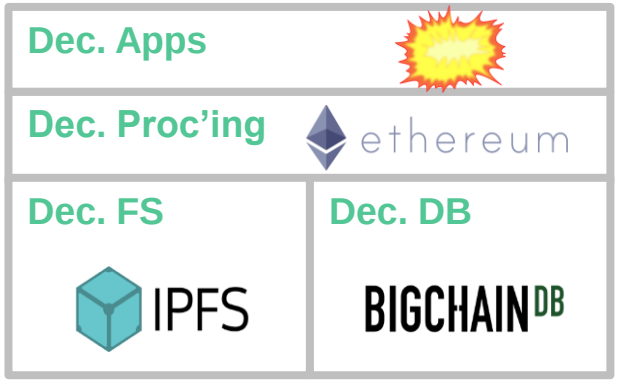

```
{
    "id":"933cd83a419d2735822a2154c84176a2f419cbd449a74b94e592ab807af23861",
    "transaction":{
        "conditions":[
            {
                "cid":0,
                "condition":{
                    "details":{
                        "bitmask":32,
                        "public_key":"BwuhqQX8FPsmqYiRV2CSZYWWsSWgSSQQFHjqxKEuqH
                        "signature":None,
                        "type":"fulfillment",
                        "type_id":4
```

Decentralization of the Cloud

Centralized → Partly Decentralized → Fully Decentralized



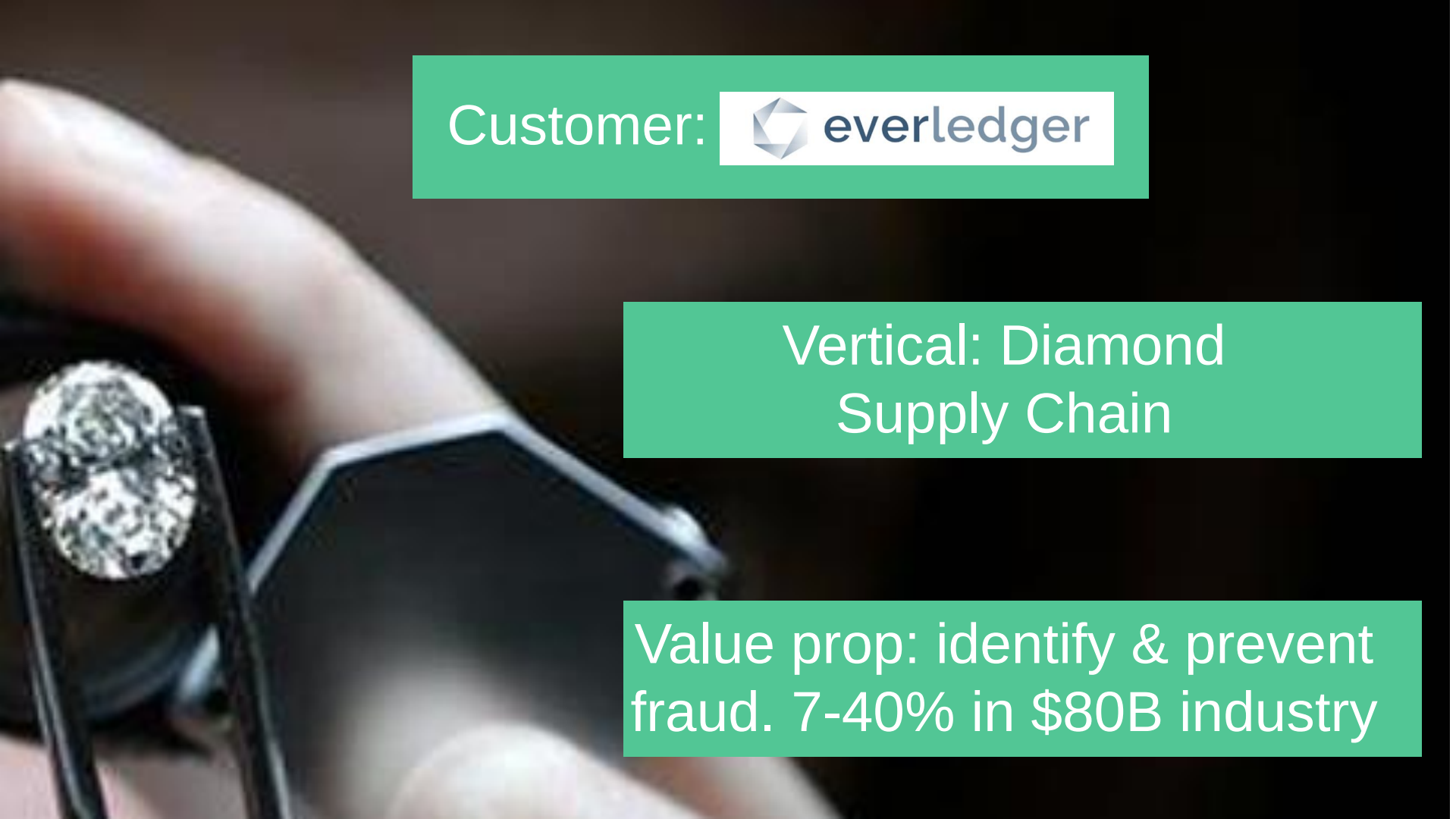




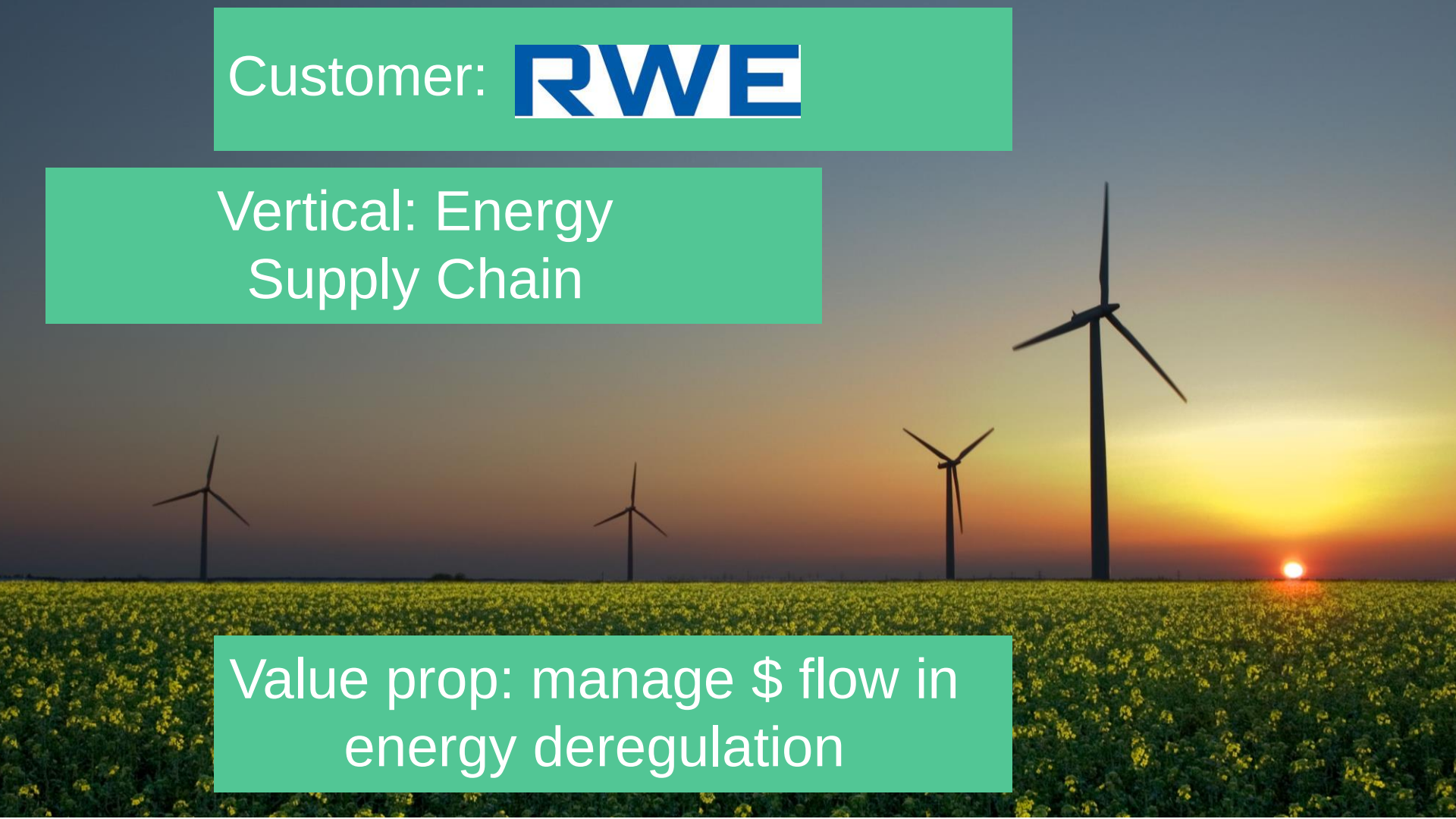
Public version of BigchainDB

iPDB

INTERPLANETARY DATABASE


Customer:
everledger
Vertical: Diamond
Supply Chain
Value prop: identify & prevent
fraud. 7-40% in $80B industry


Customer: Tangent90
Vertical: Medical Journals / Supply Chain
Value prop: government-mandated transparent $ flow


Customer: RWE
Vertical: Energy Supply Chain
Value prop: manage $ flow in energy deregulation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Customer: ascribe.io
(incl. 5000 artists, 25 orgs)
Verticals: Art Supply Chain,
Intellectual Property
Value Props: secure provenance
in $64B art industry, IP mgmt.

BigchainDB:
A Scalable Blockchain Database

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github.com/bigchaindb

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