AN ANALYSIS INTO

NFTs and the Blockchain
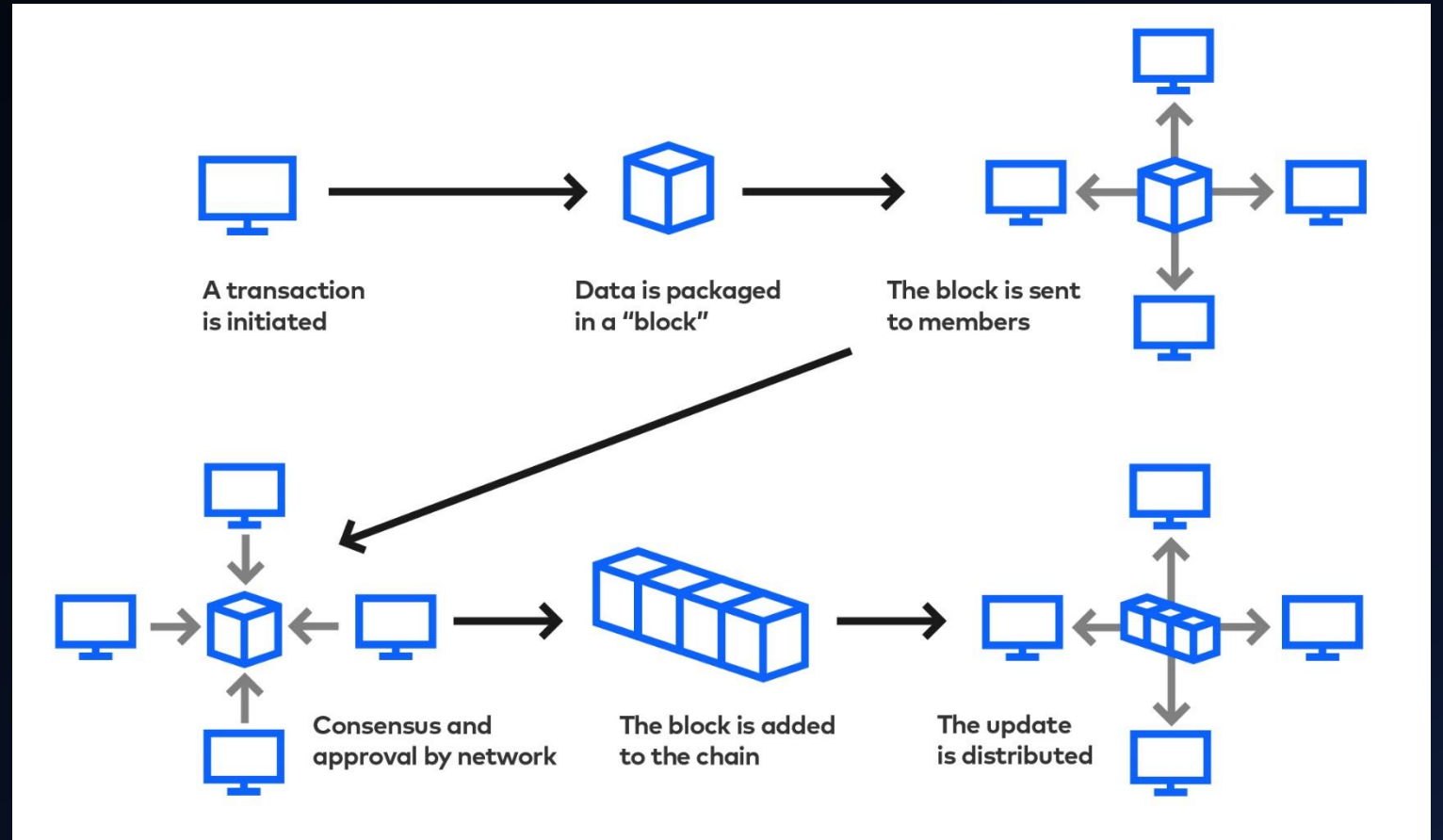
BY TATUM GRAY

Why This Topic?

- Trendy

- Blockchain?

- Crypto?

- Web 3.0

Introduction to NFTs

- Non-Fungible-Token

- Associated with crypto currency

- Digital Ownership of Something

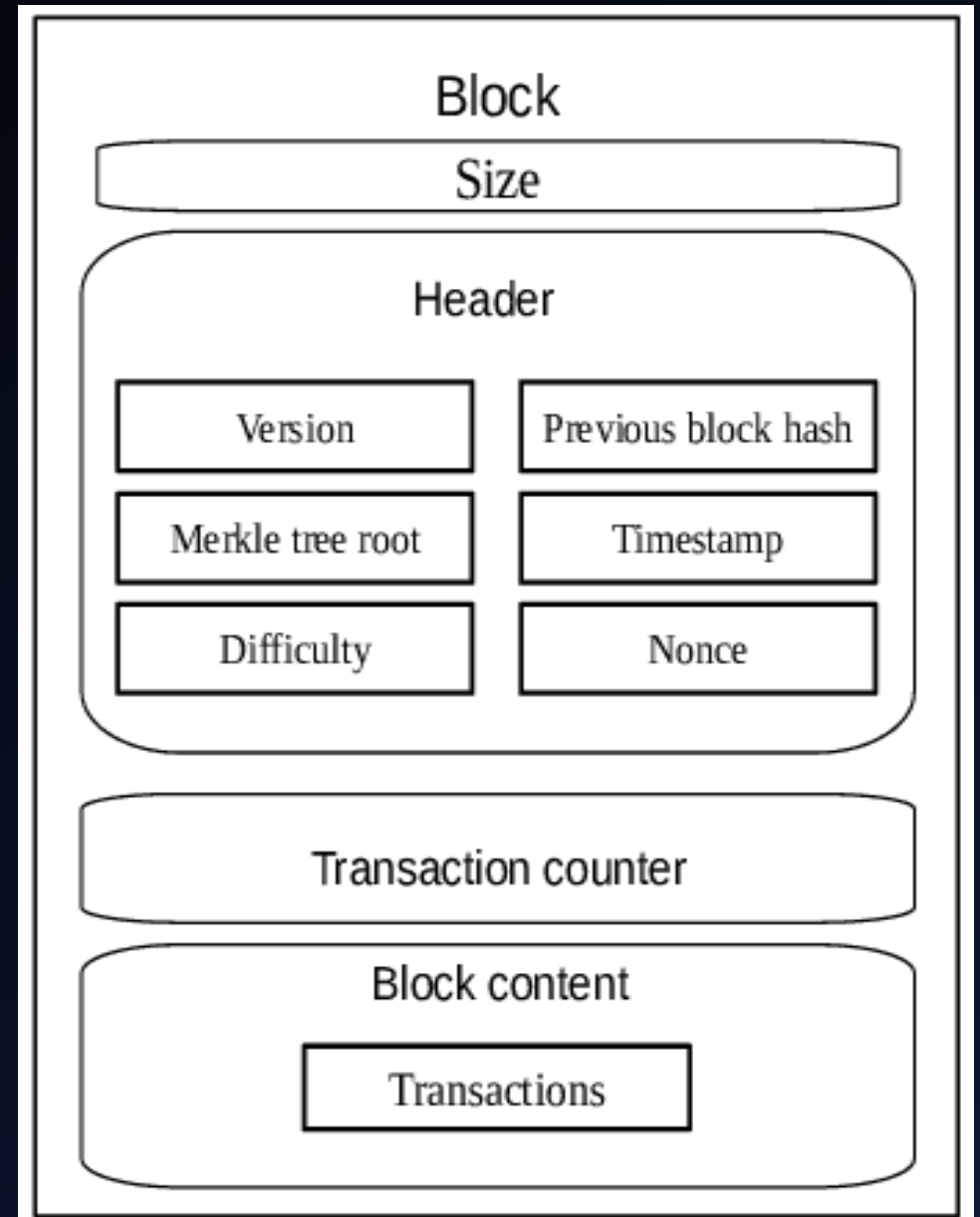- Uses blockchain technology

Blockchain

- List of transactions [Ledger]

- Block

- Cryptography

- Distributed amongst Nodes
  - Simultaneous
  - Mutual Agreement
  - Decentralized
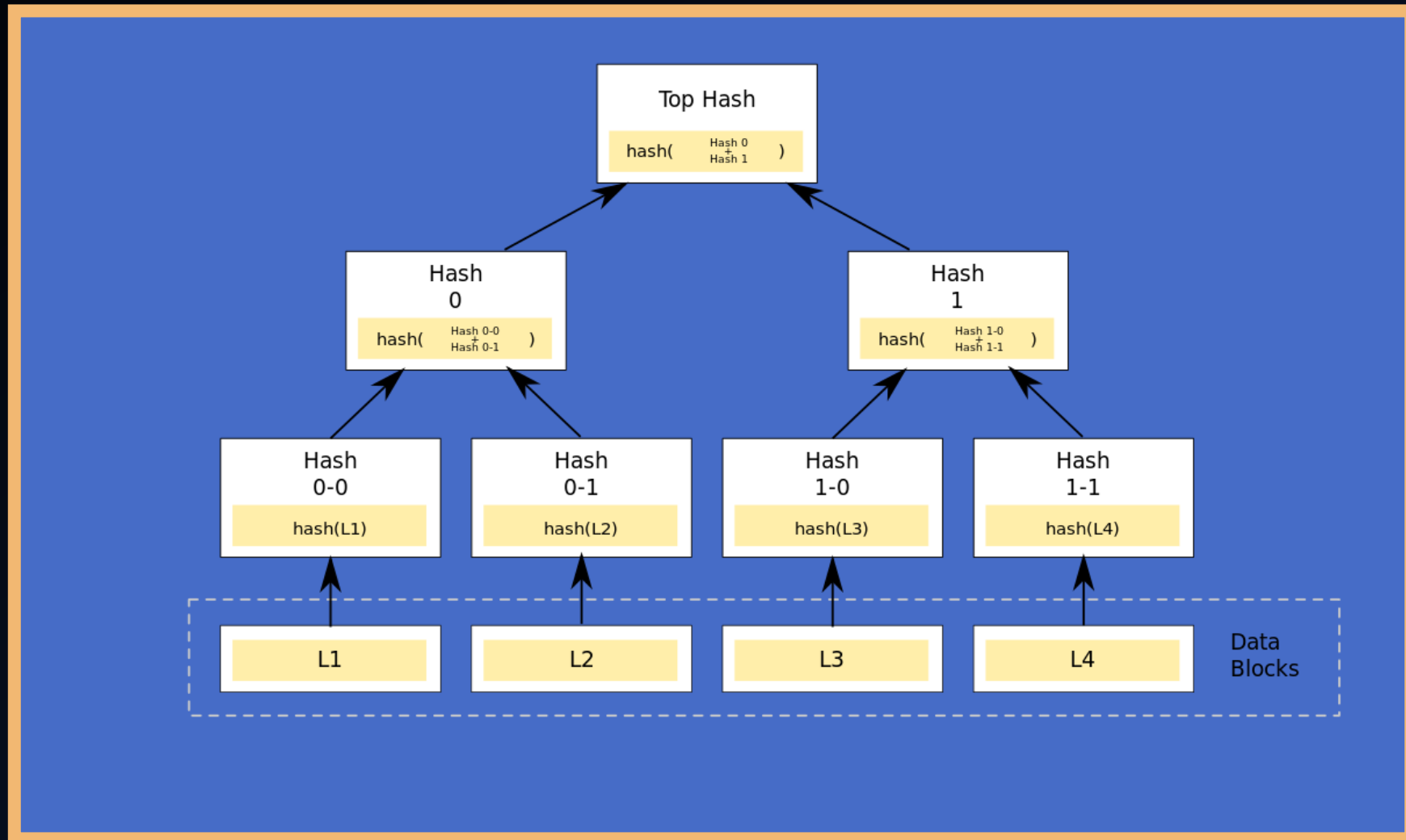 - Append Only, Immutable

- Smart Contract

A transaction is initiated

Data is packaged in a "block"

The block is sent to members

Consensus and approval by network

The block is added to the chain

The update is distributed

Block Contents

- Hash associated with Previous block

- Timestamp

- Merkle Root Hash

- Nonce – Calculated block number

Block

Size

Header

Version | Previous block hash

Merkle tree root | Timestamp

Difficulty | Nonce

Transaction counter

Block content

Transactions

Merkle Tree

Private vs Public Chains

- Permissioned vs Permission-less

- Opt In vs Opt Out Nodes

- Public
  - Proof of Work
  - Proof of Stake

- Other Consensus models
  - Proof of Authority
  - Byzantine Fault Tolerance
  - Etc.

Transactions via the Blockchain

- NFTs Ethereum based

- Bitcoin Point of Reference

Crypto Currencies - Bitcoin

- Solve a Random Number

- First to Solve

- Ledger appends new entry

- Bitcoin Reward – Proof of Work

- More Complexity Required with Scale

Bitcoin Mining Specifics

- 64 Digit Hex Number

- 1.158e77 Possible Combinations

- Unit of Measure: Hashes

- Hashes/ Second

- Public Transaction Record

- Hard Limit of 21 Million

GENESIS MINING

Collected from Via Tech Vision
from Jan 6th 2021

Crypto Currencies – Ethereum

- Proof of work model

- Transactions based on Gas

- Gas Price for processing transaction

- Transitioning to Proof of Stake

ethereum

NFTs

- Stored on the Blockchain

  - Smart Contract

  - Variable in Size

  - Processed through the chain

  - Gas Fees Required for Purchase

- Proof of Ownership

Concerns

- Skeptical Ownership
- If you own it, you can sell it
- Price Fluctuations
- Security not guaranteed
- Proof of stake is gambling
- Proof of work consumes resources

- Forks in the chain are possible
- 1,544 kWh per Transaction
- $1 Million for Energy/Month

Any Questions?

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