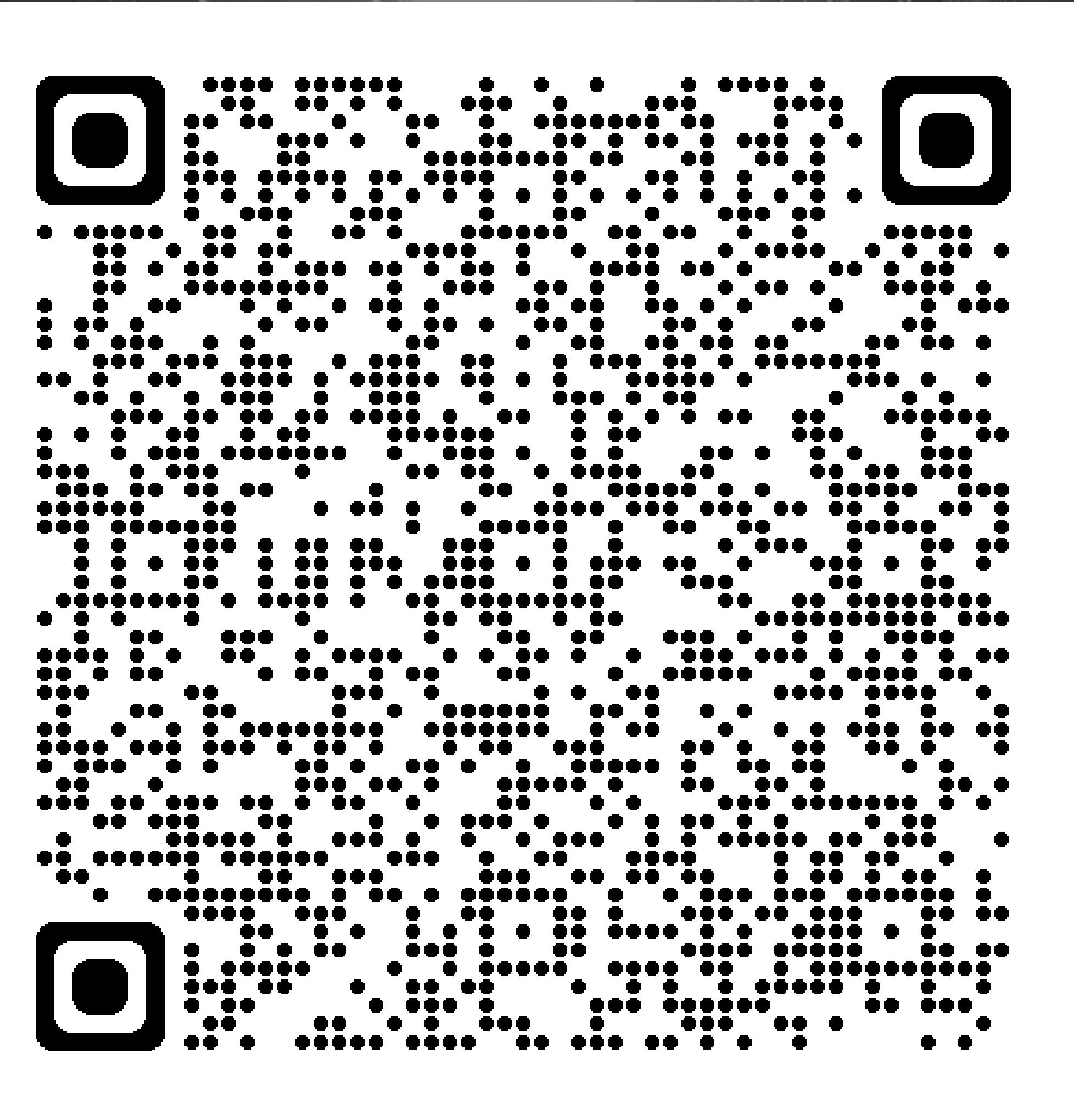


GET THE SLIDES NOW ➔





Build Web3 Applications on a Next Generation “Blockchain”

Introduction to Hedera

Ed Marquez – Hedera

Viv Diwakar – The HBAR Foundation



[/ed-marquez](https://www.linkedin.com/in/ed-marquez)

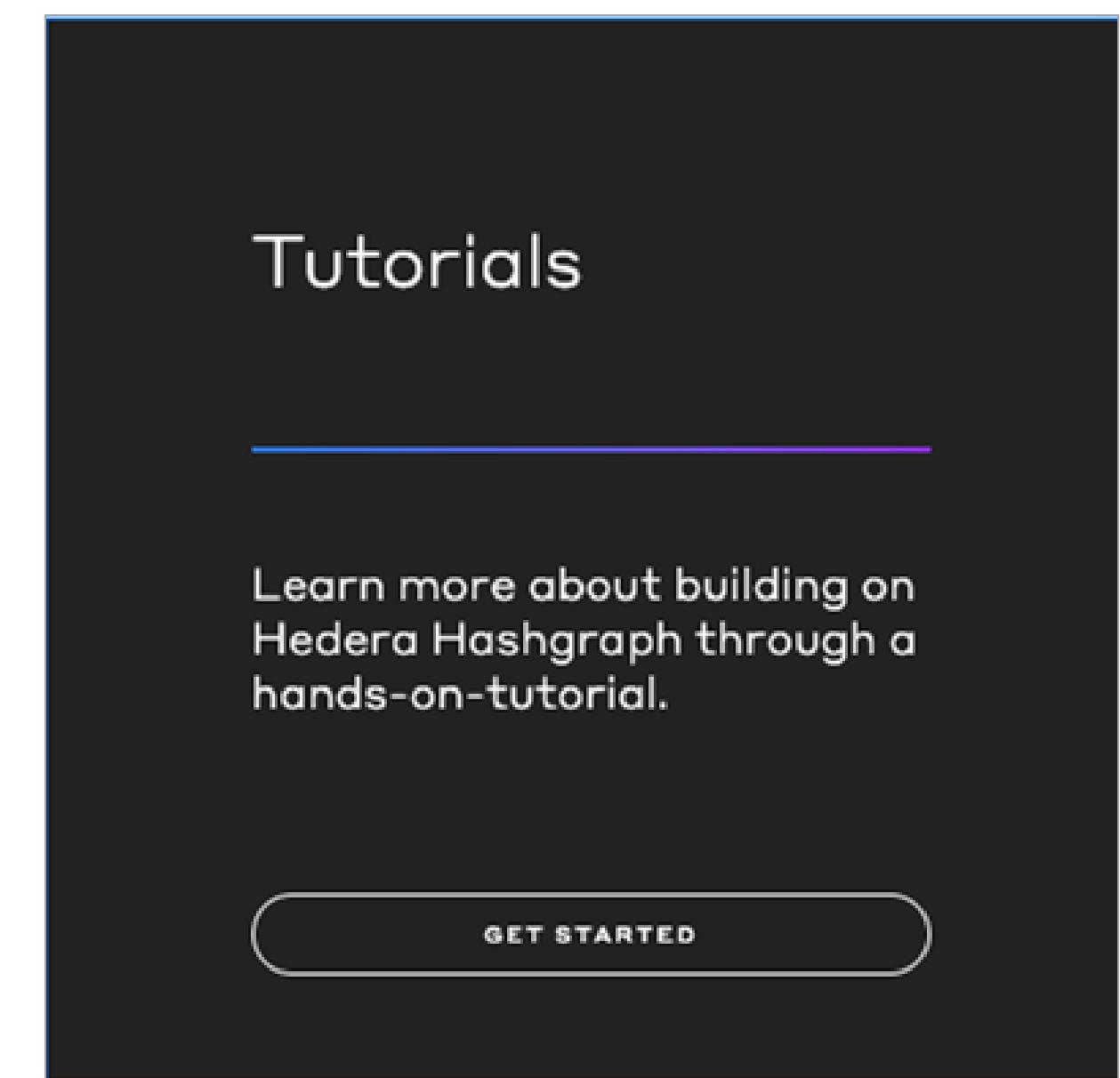
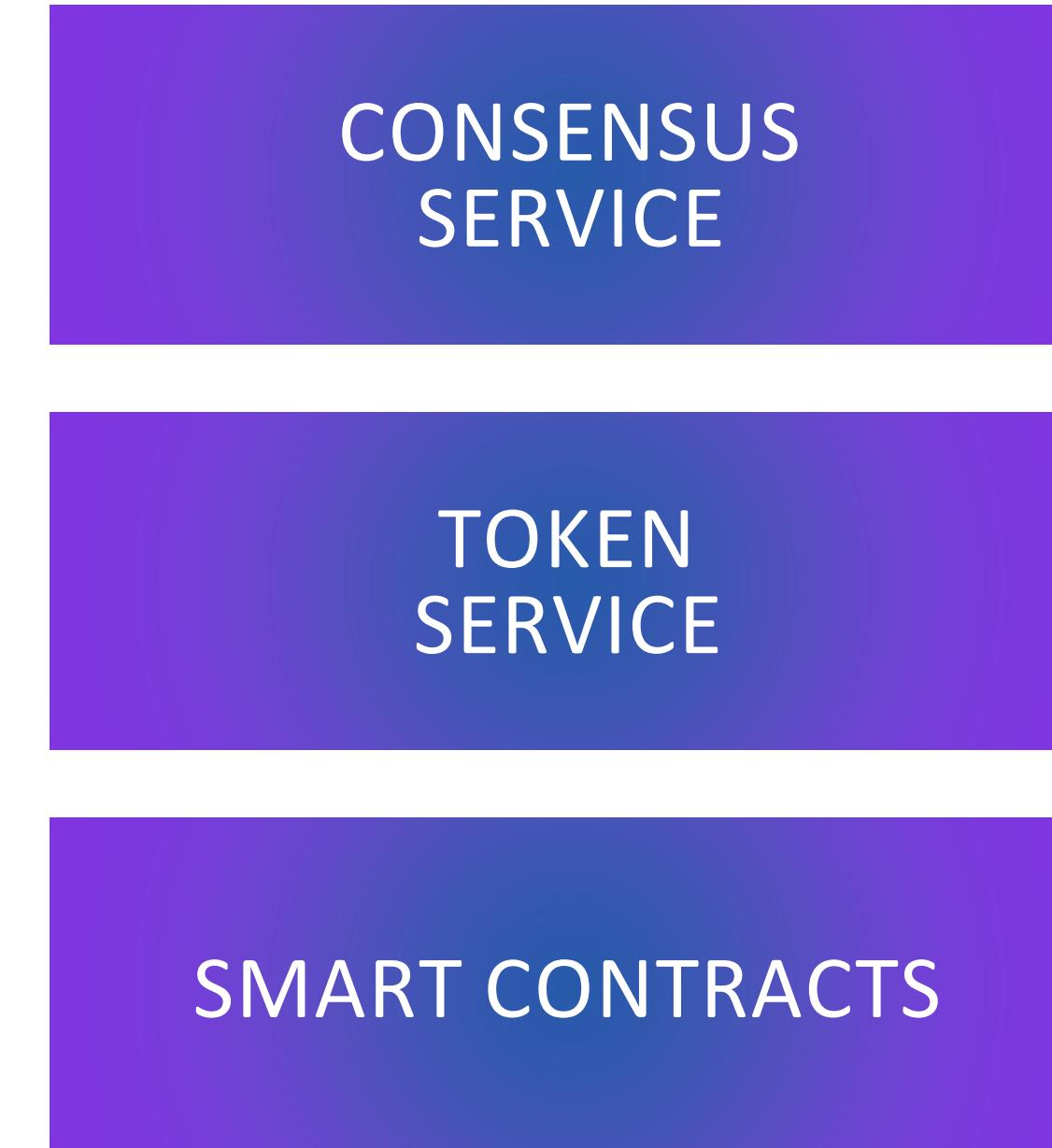
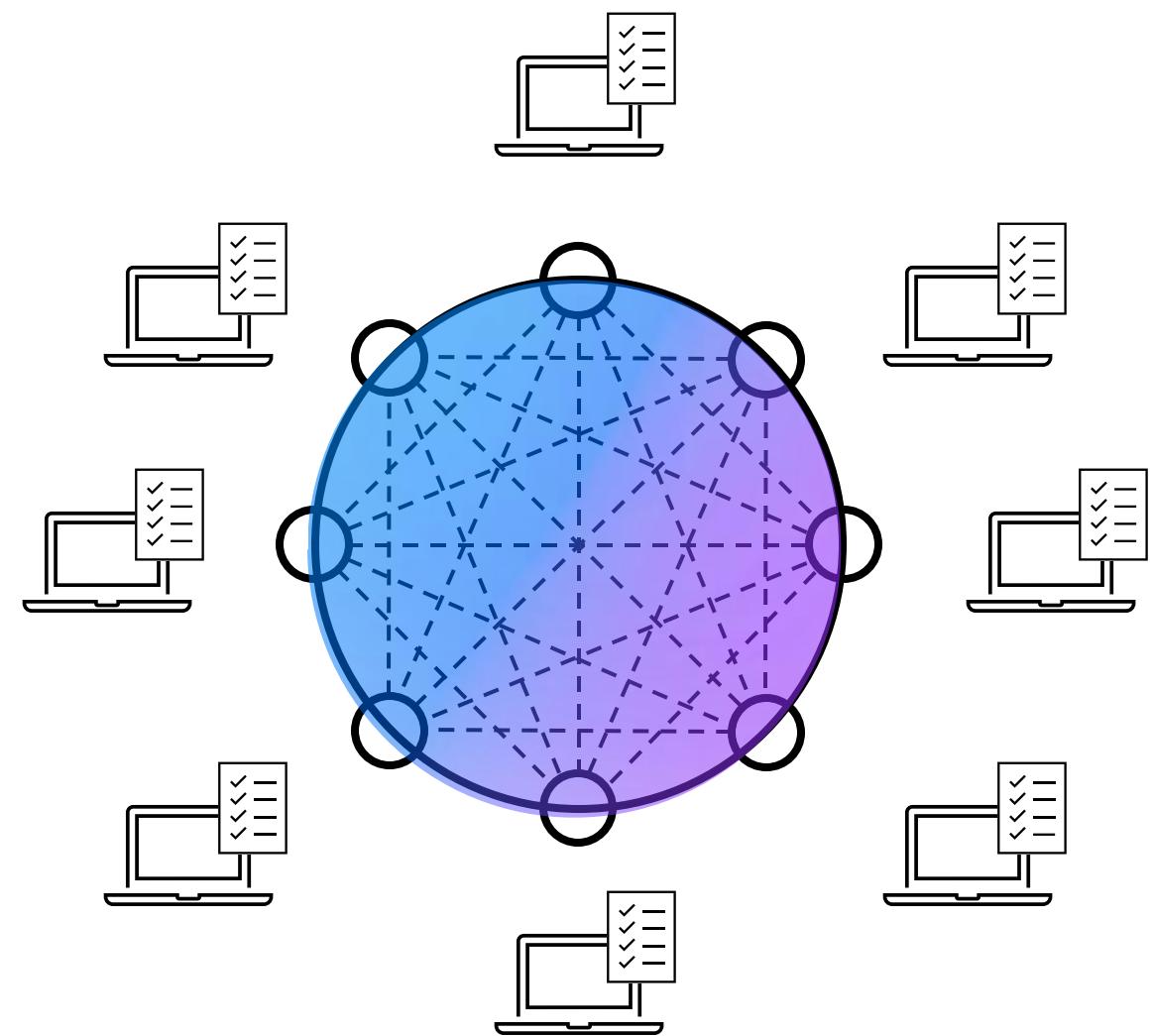
| [/vivdiwakar](https://www.linkedin.com/in/vivdiwakar)



[@ed_marquez](https://twitter.com/ed_marquez) | [@HBAR_foundation](https://twitter.com/HBAR_foundation)



In this session, you will learn how the **Hedera network functions**, how you can **start development**, and **where to learn more**



Introduction

Understand
the Hedera Network

Start Developing on
Hedera

Get Resources and
Learn More

What Is Web 3.0?

Forbes

Charles Silver Forbes Councils Member
Forbes Technology Council

Gartner

Blockchain's Big Bang: Web 3.0

By [Avivah Litan](#) | August 08, 2019 | 7 Comments

NEWSLETTERS • THE LEDGER

We live in an age of discovery at the dawn of Web 3.0

BY ROBERT HACKETT AND DECLAN HARTY

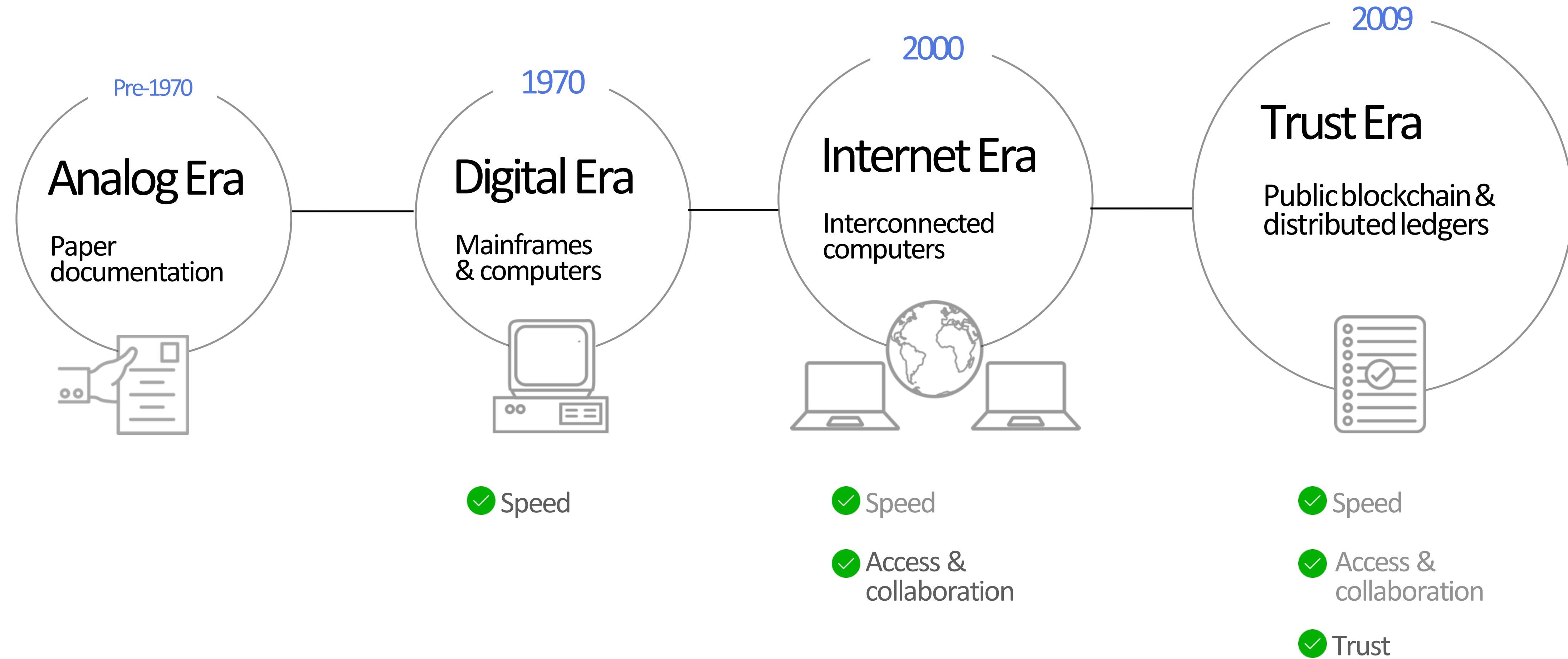
November 5, 2021 7:01 PM EDT

Web 3.0 can repair the attention-driven digital economy

Doug Petkanics [@petkanics](#) / 4:17 PM EST • November 8, 2021

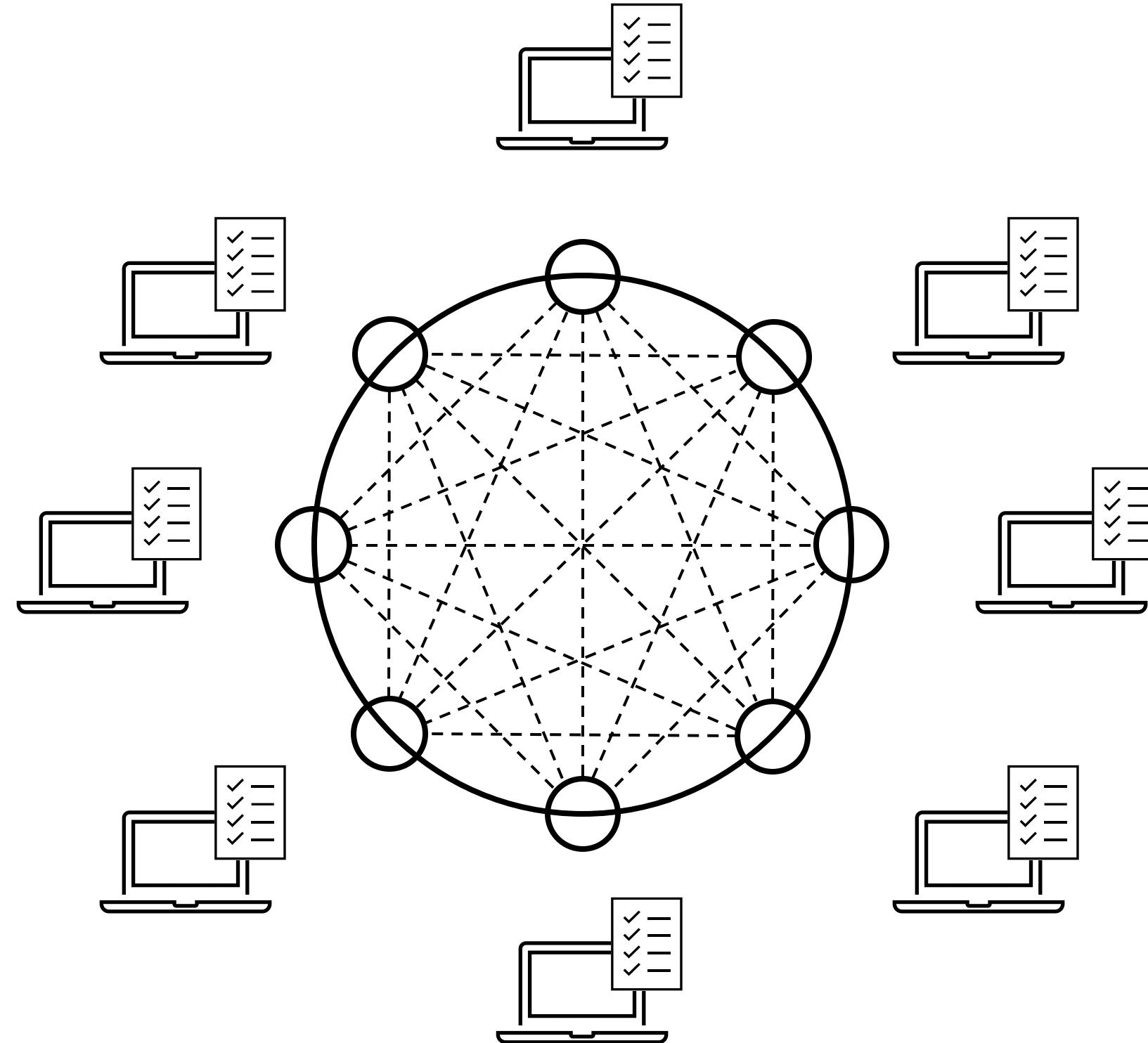
 Comment

The web evolves continuously and now it is becoming more decentralized



Distributed ledgers are a key component of Web 3.0 because of their qualities

DISTRIBUTED LEDGER



Entire network records and validates each transaction

CENTRALIZED LEDGER



Single authority verifies, records, and executes transactions

Distributed ledgers are a key component of Web 3.0 because of their qualities

No central point of failure to attack

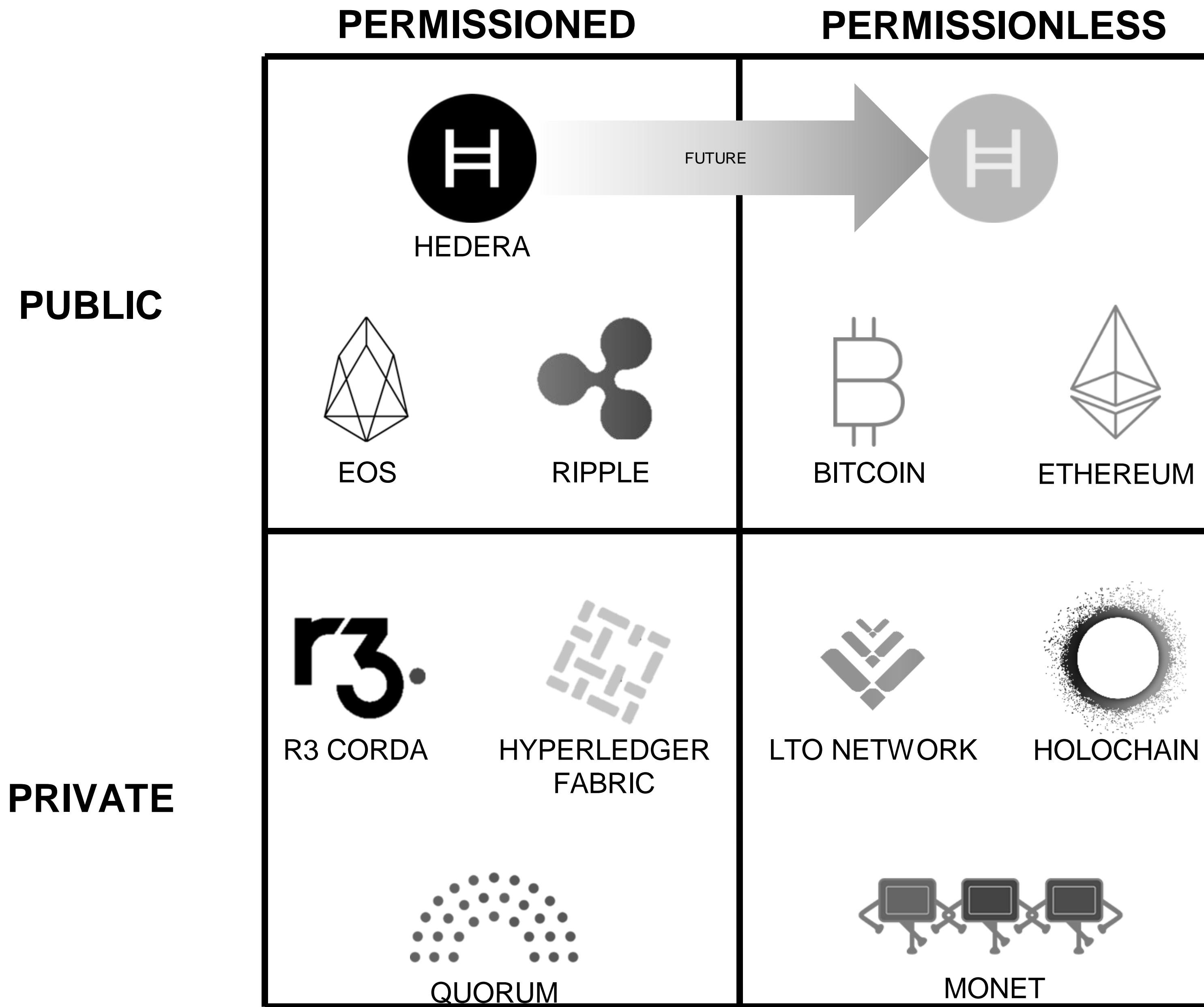


Reliant on strong cryptography to prove data integrity and tamper resistance

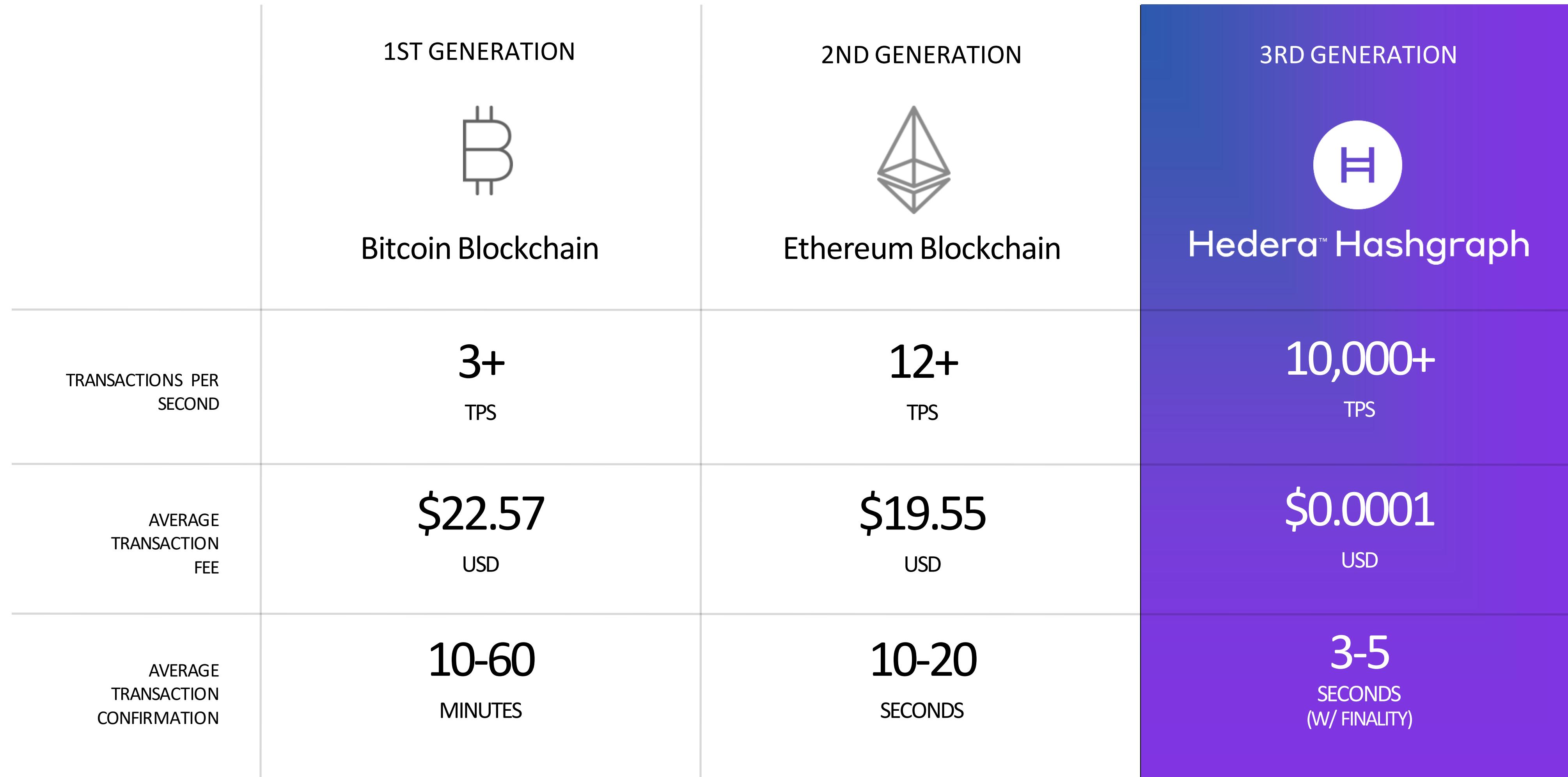


Rules for the ledger are determined by a governing concept of some sort

Require a consensus mechanism to determine the rules for adding new transactions to the state of the ledger



Hedera is a third-generation public distributed ledger



• Cryptocurrency transactions. For Hedera, range shown for transactions not requiring a transaction record, but can receive a transaction receipt.

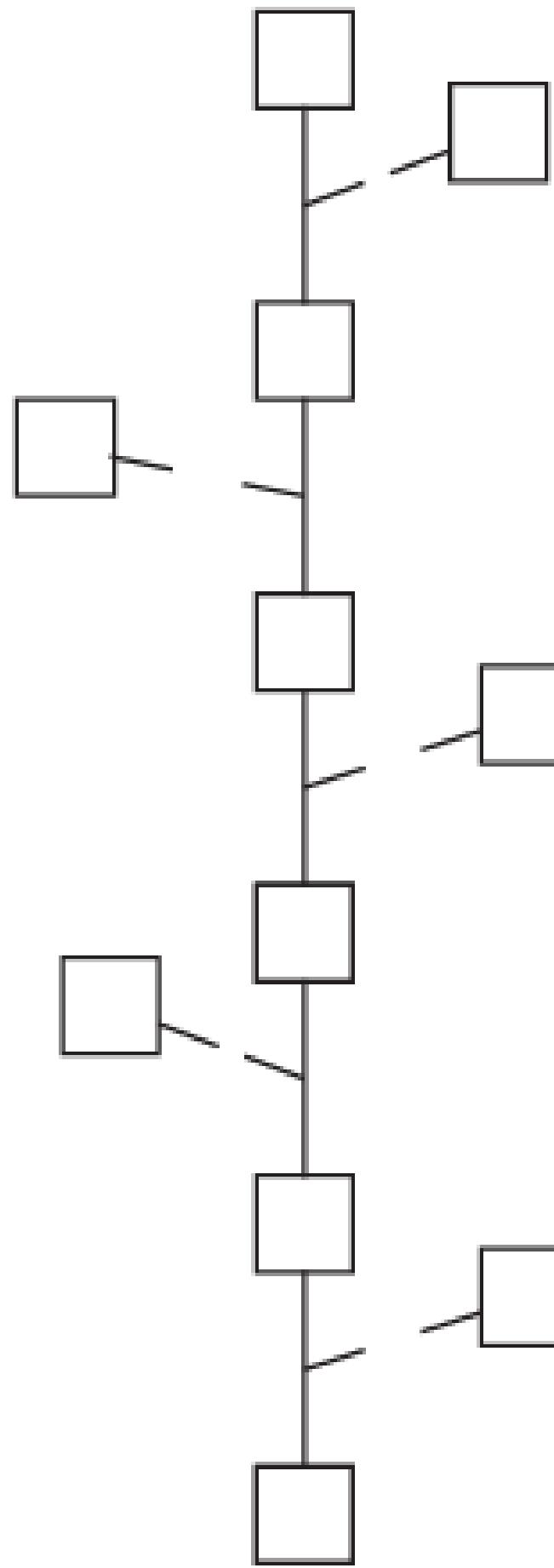
• Avg. Bitcoin tx fee from 6/26/20 - 9/24/20 from <https://blockchair.com/bitcoin/charts/average-transaction-fee-usd?interval=3m>

• Avg. Ethereum tx fee from 6/26/20 - 9/24/20 from <https://blockchair.com/ethereum/charts/average-transaction-fee-usd?interval=3m>

3rd Generation Public Ledgers

| |  polygon |  Algorand |  Ethereum |  Hedera |
|----------------------------|---|--|--|--|
| Transactions per second | 6,500* (claimed) | 1,000† (approximate) | 12+ | 10,000+ |
| Average Fee (USD) | \$0.0020 (variable) | 0.001 Algo (fixed) | \$19.55 (variable) | \$0.0001^ (fixed) |
| Time to Confirmation | 5 - 10 seconds (leader block creation) | 5 seconds (leader block creation) | 10 - 20 seconds (leader block creation) | 3-5 seconds (with finality) |
| Energy use per transaction | 90+ kWh | 0.00534 kWh | 102+ kWh | 0.00017 kWh |

TRADITIONAL BLOCKCHAINS



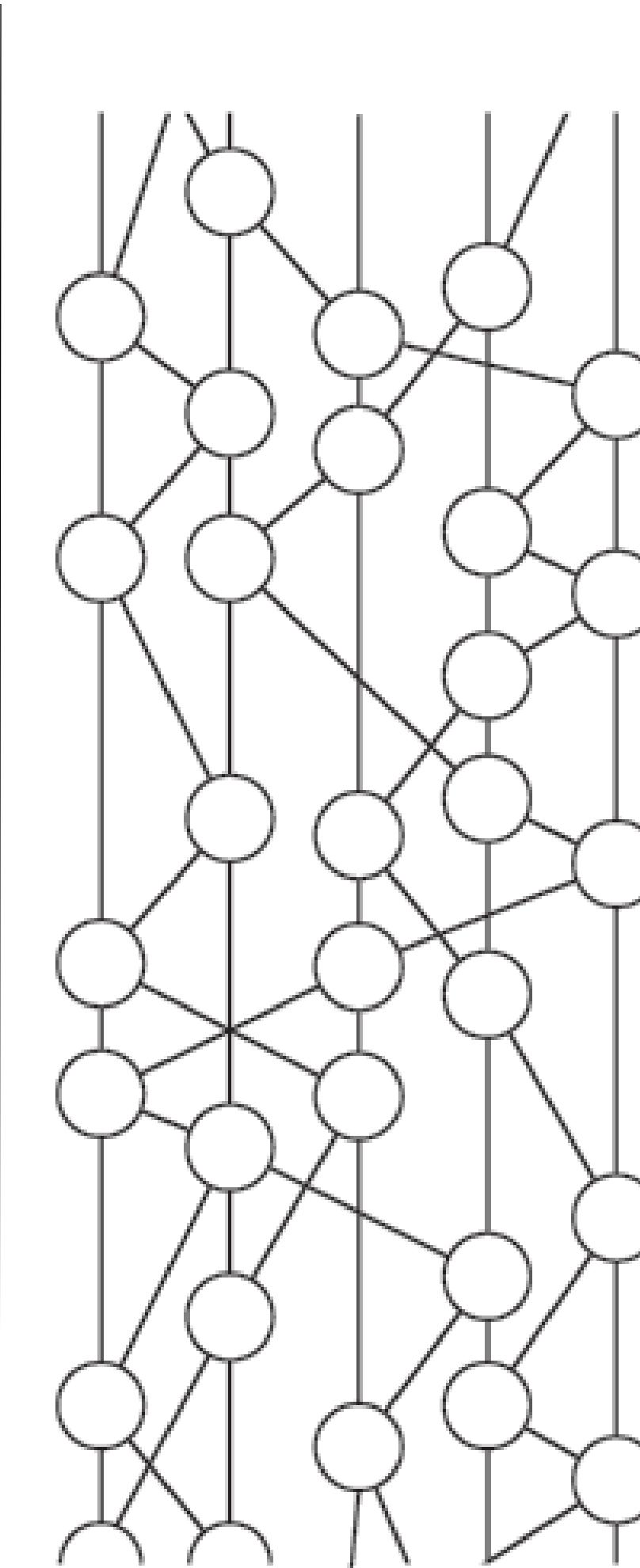
Proof-of-Work (PoW) typically has heavy electrical/computational requirements

No guaranteed consensus, just a “good enough” probability

Inefficient - “stale” blocks are pruned

Can be difficult to scale beyond ~1,000 tps

HASHGRAPH



Hashgraph is an **open-source** consensus algorithm and data structure

Uses a directed acyclic graph (DAG) and novel inventions

- Gossip about gossip
- Virtual voting

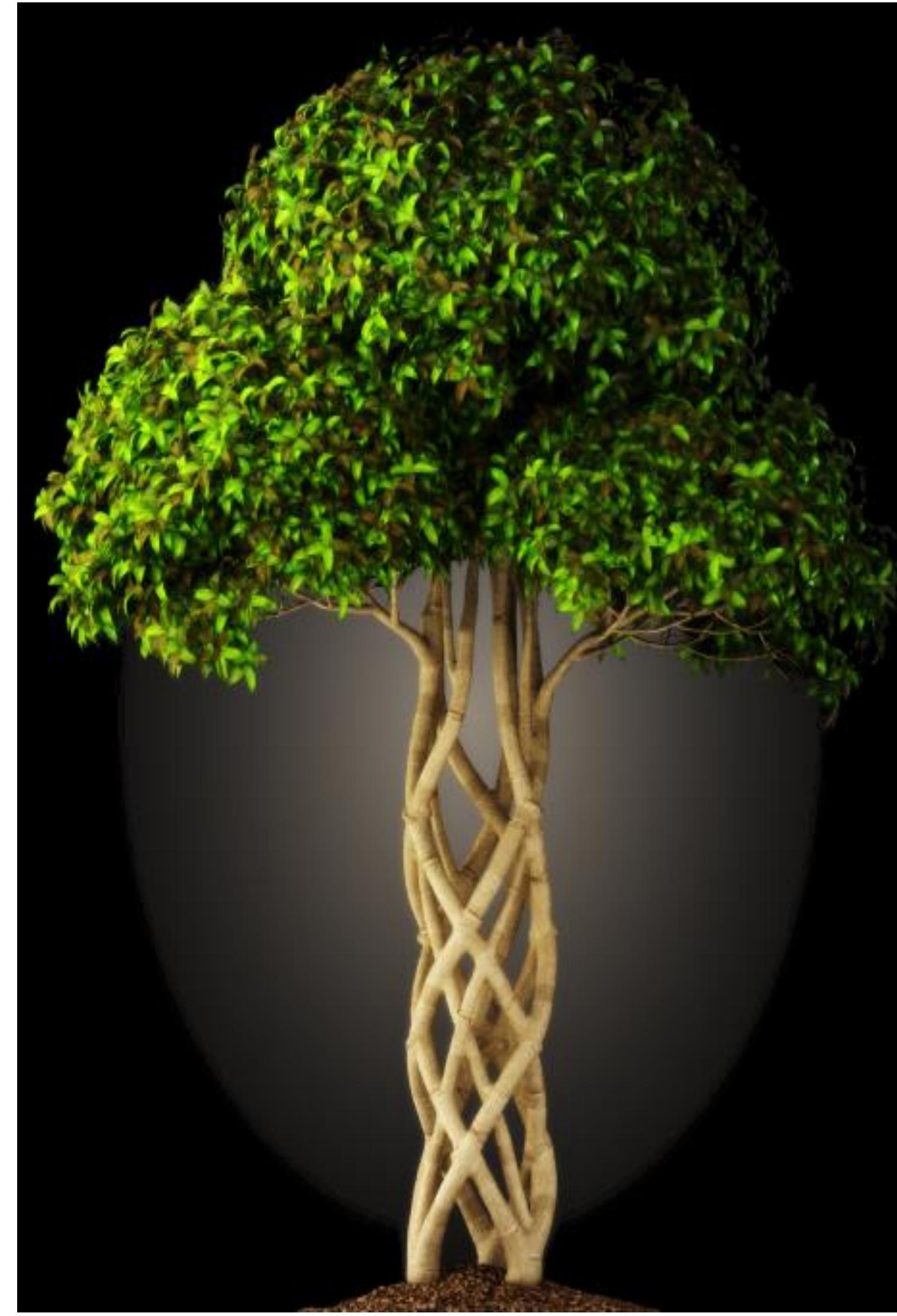
Hedera currently supports 10,000+ cryptocurrency transactions per second

Finality within 3-5 seconds

TRADITIONAL BLOCKCHAINS



HASHGRAPH





14,000+ DEVELOPERS

Attending global hackathons, meetups, and active in Discord.

100+ APPLICATIONS

In production on Hedera Mainnet, since open access on Sept. 2019

>7,000,000+ TXS/DAY

Far surpassing the daily transaction volume of Ethereum.

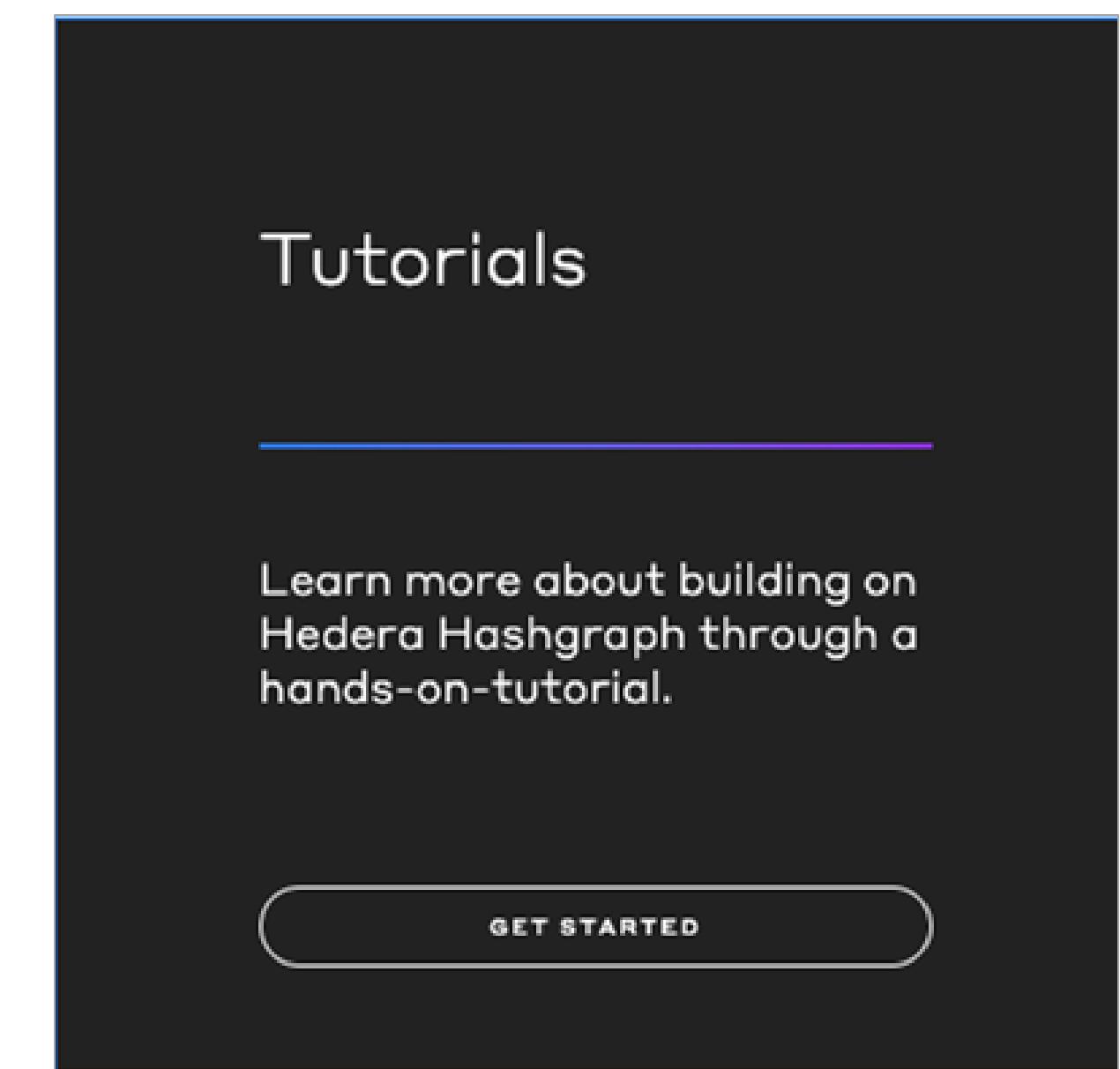
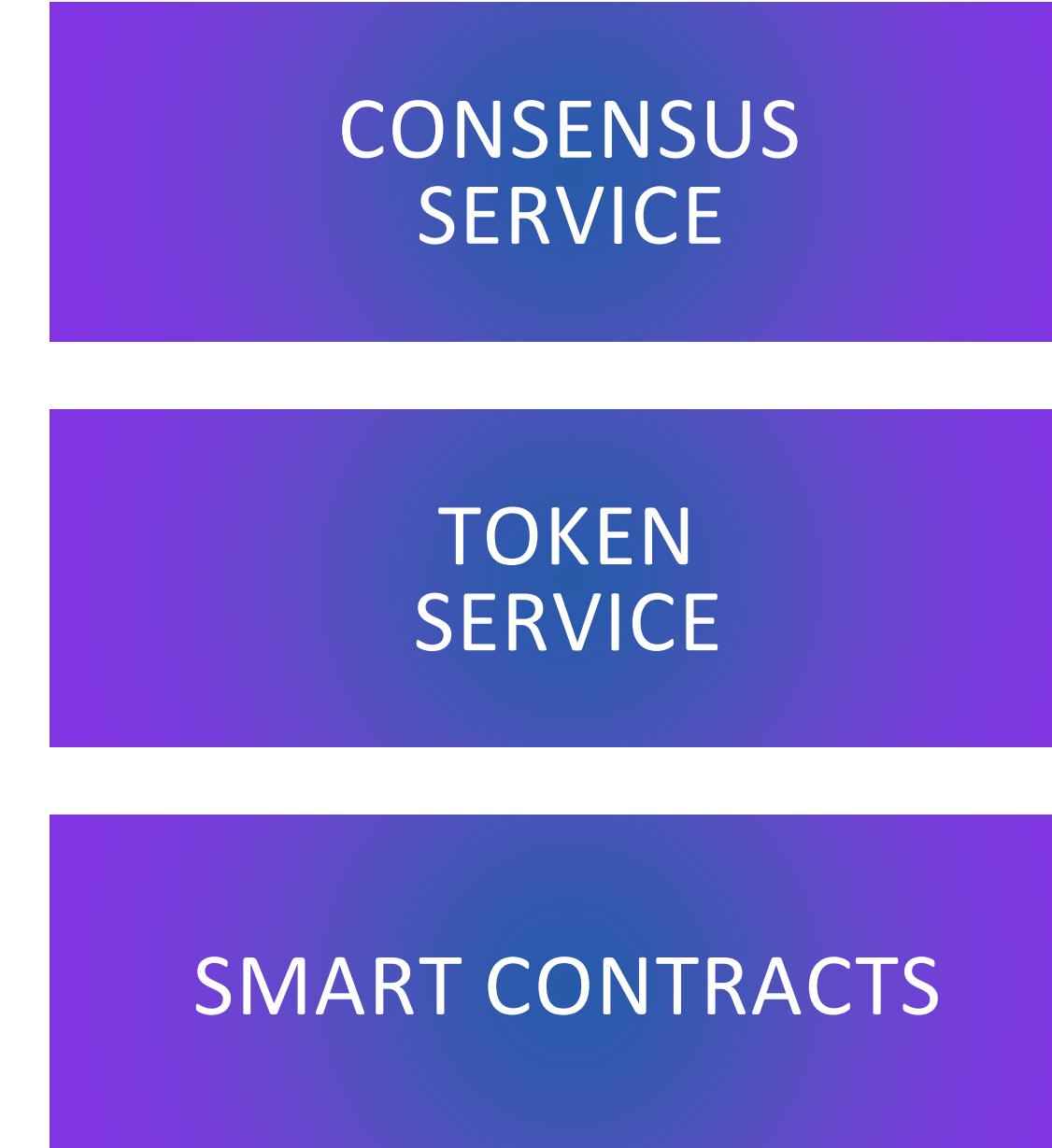
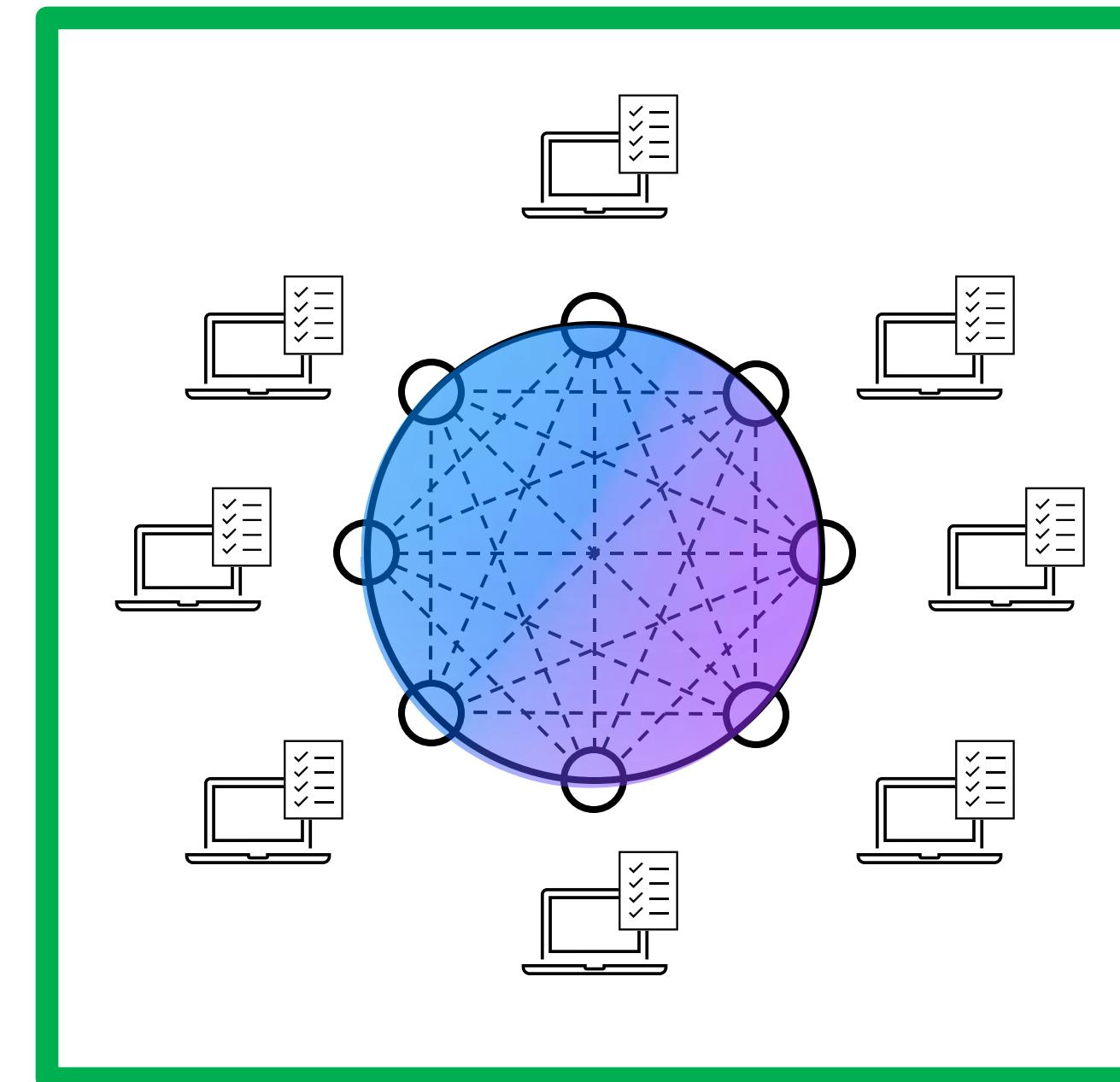
>2,350,000,000+ TXS TO DATE

Most used public DLT surpassing total transaction volume of Ethereum.

>830,000+ TOTAL ACCOUNTS ON MAINNET

66,700 accounts created in April 2022 alone.

In this session, you will learn how the **Hedera network functions**, how you can **start development**, and **where to learn more**

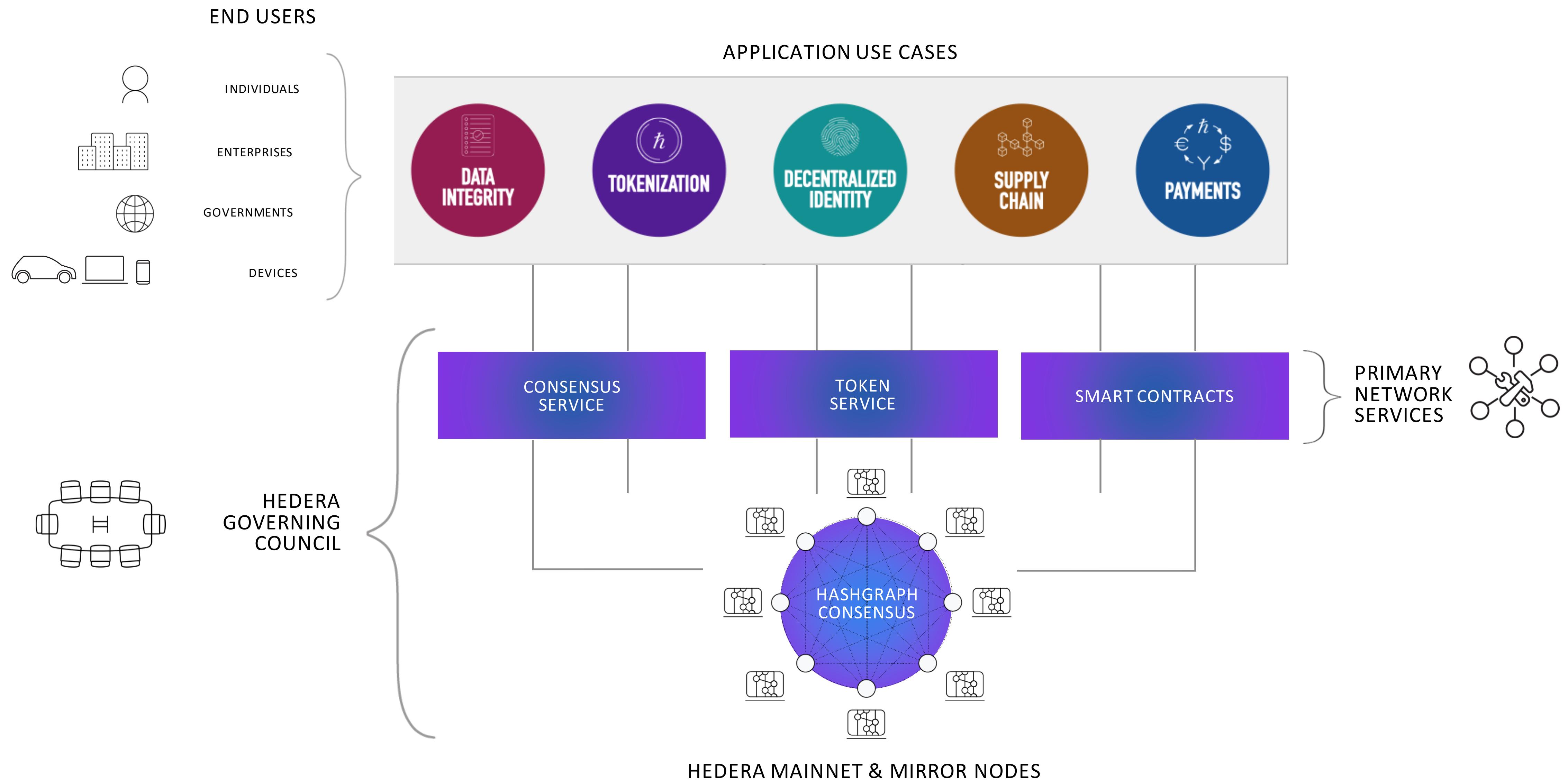


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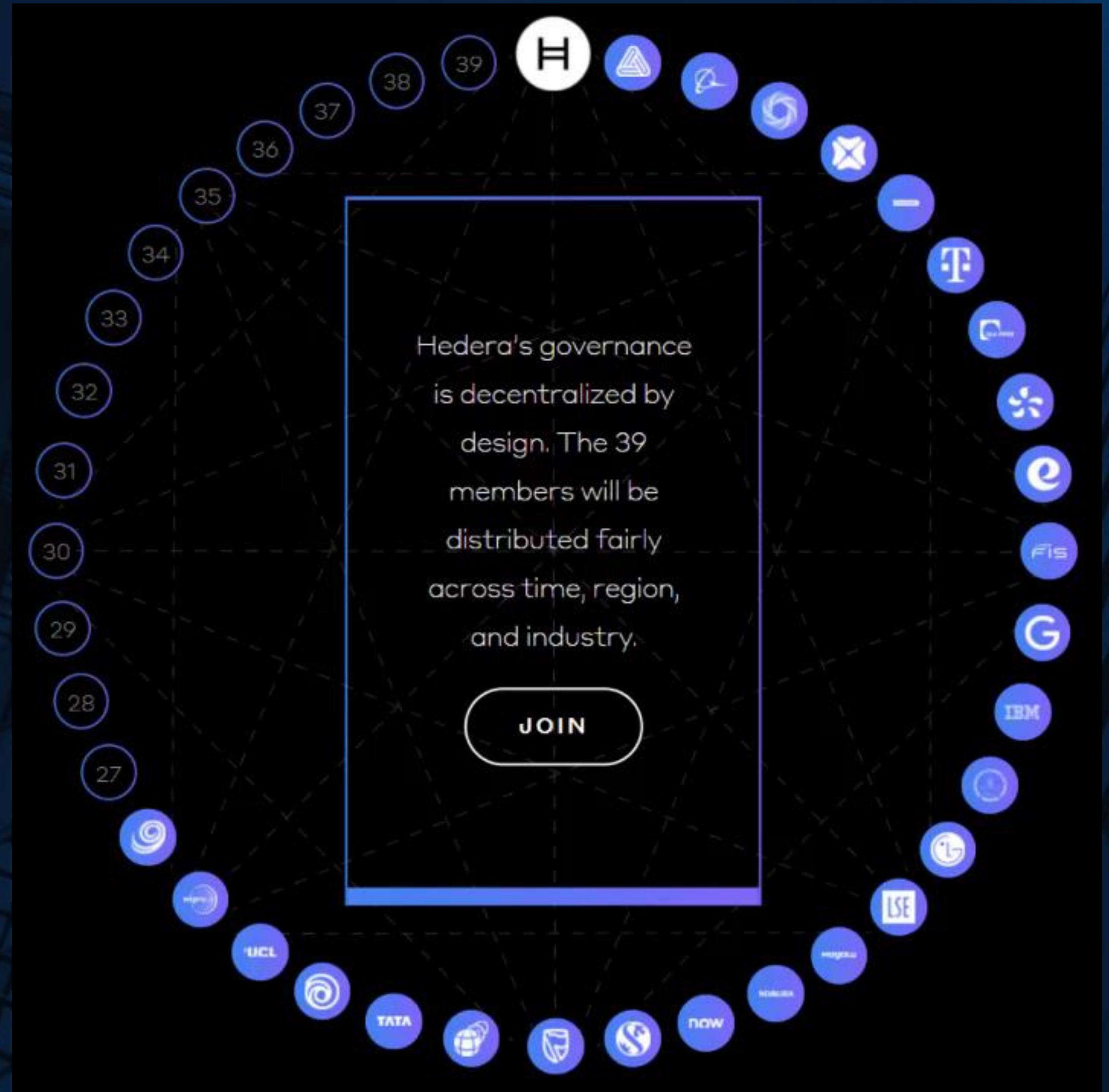
Hedera Governing Council



Up to **39** leading global organizations

20+ unique industries across **5** continents, touching all major markets

3-year maximum term, with up to 2 consecutive terms



2.6% influence per member (equal vote)

7 committees:
Membership, Marketing, Finance, Audit, Technical Steering/Product Pricing, Legal & Regulatory

Every member required to run a network node



Chainlink Labs



DENTONS



Deutsche
Telekom

NOMURA

magalu

eftpos



SHINHAN BANK

FiS Google

IBM



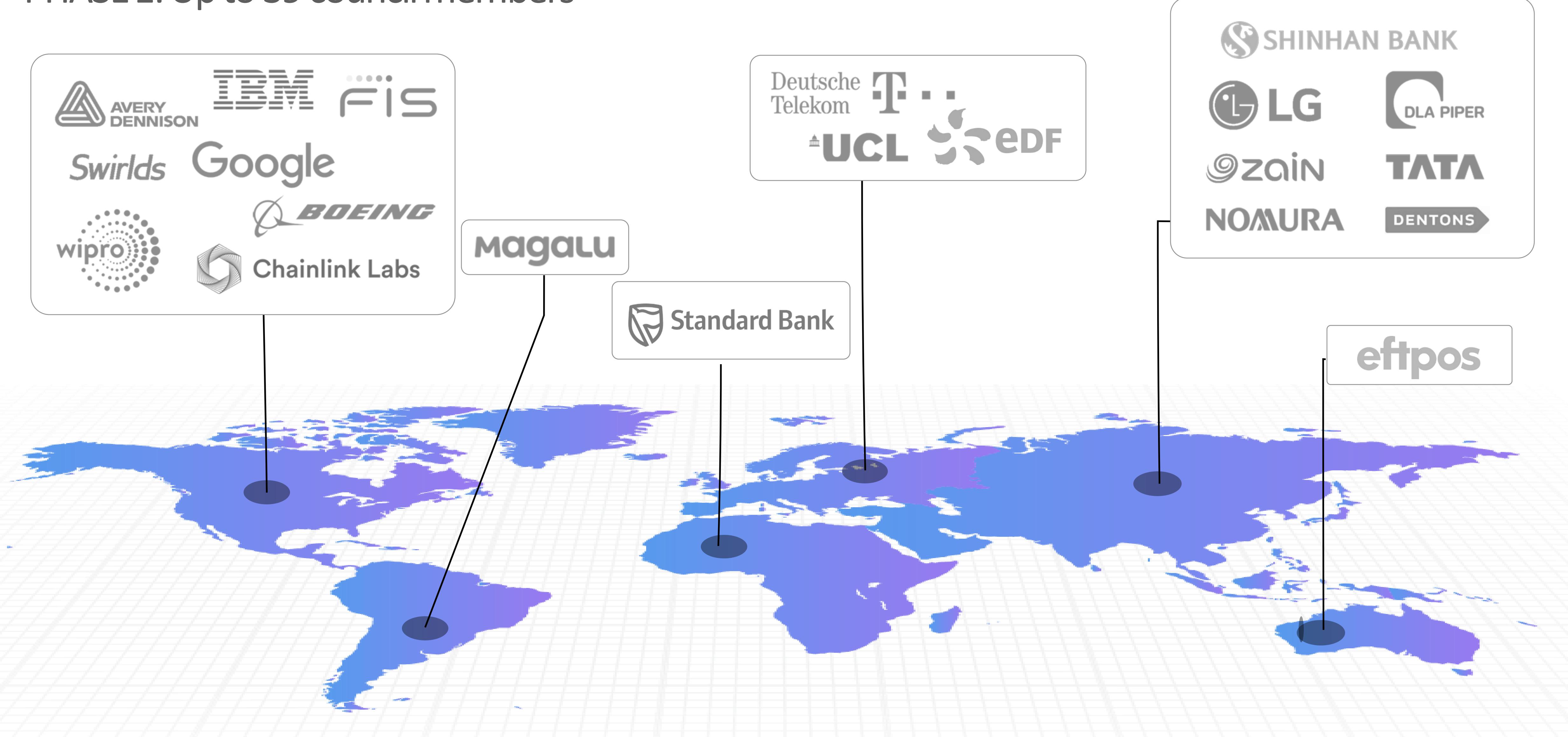
**HEDERA
GOVERNING COUNCIL**

Google

Building the future together

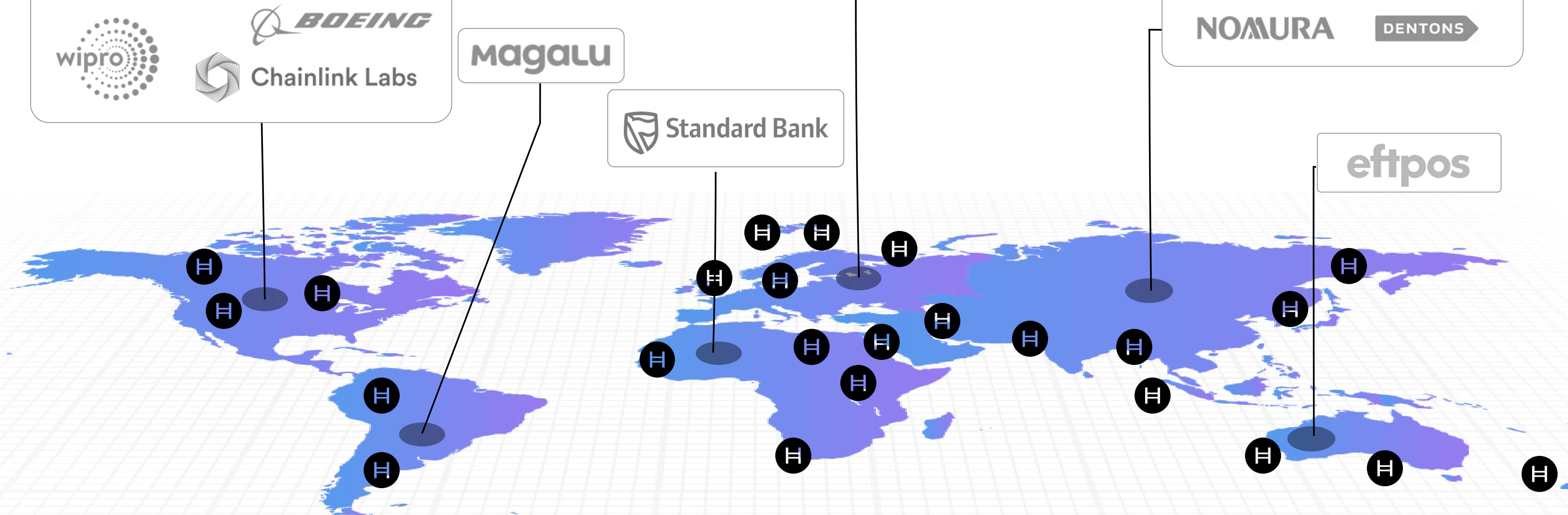
NETWORK GROWTH OVER TIME

PHASE 1: Up to 39 council members



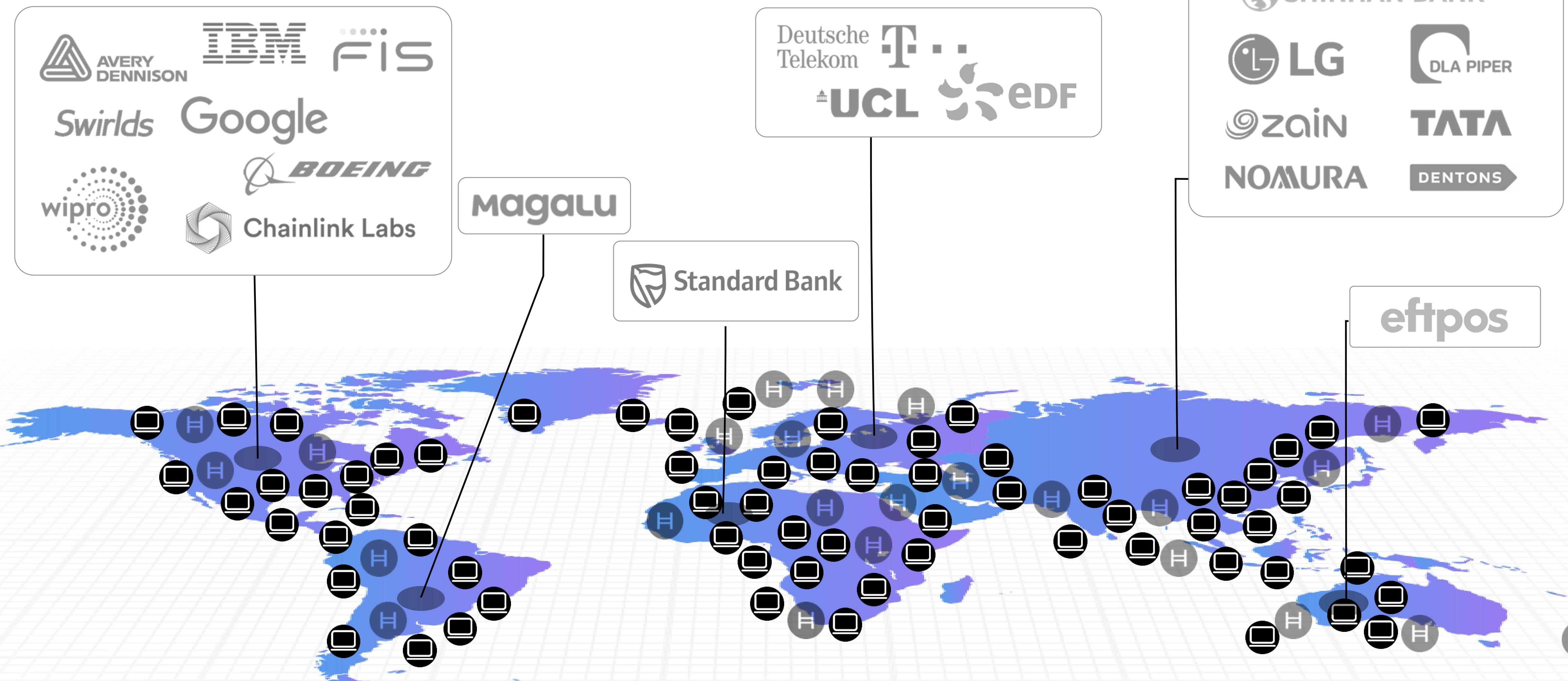
NETWORK GROWTH OVER TIME

PHASE 2: 100s of KYC'd permissioned nodes

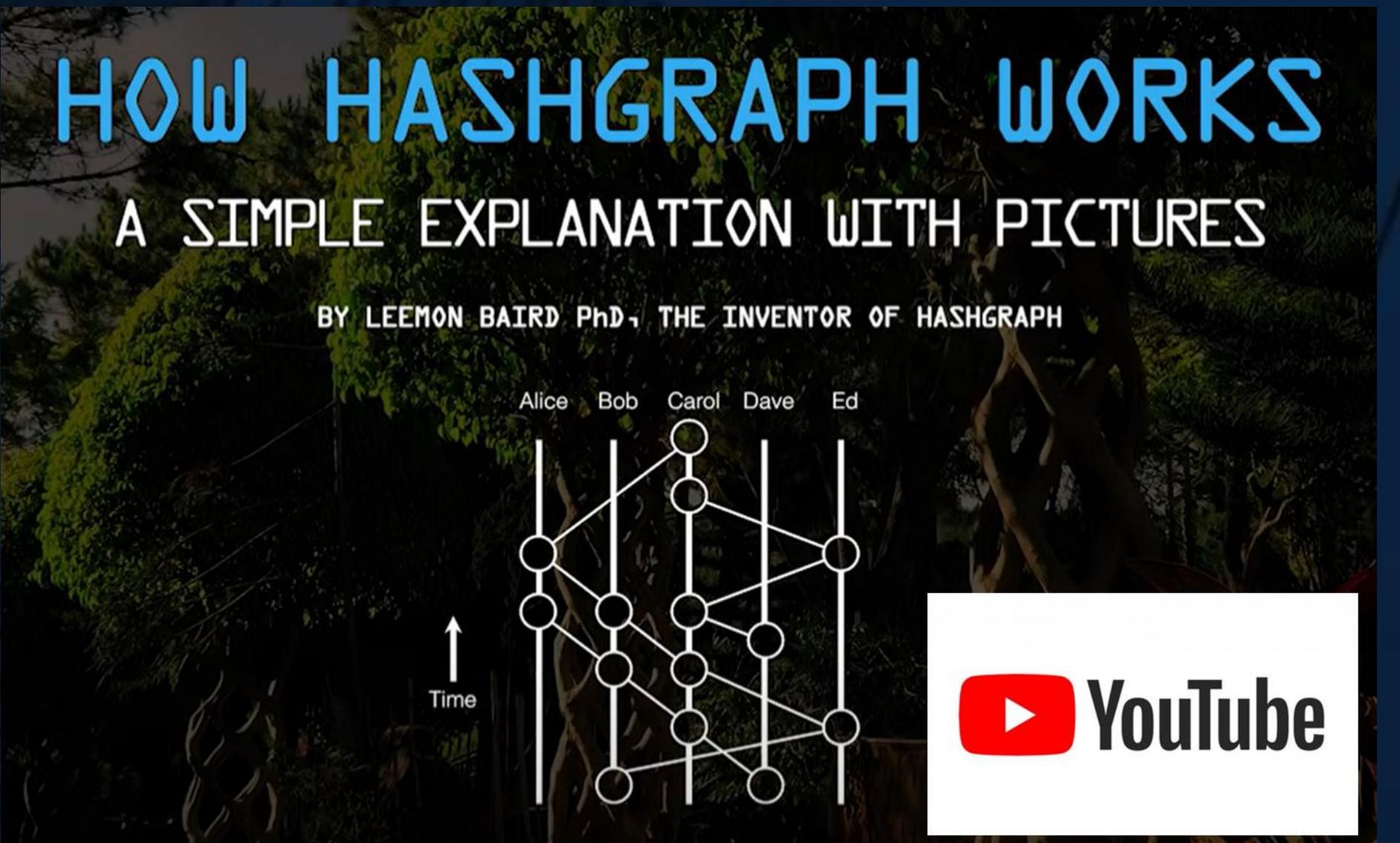


NETWORK GROWTH OVER TIME

PHASE 3: 1000s of permissionless nodes

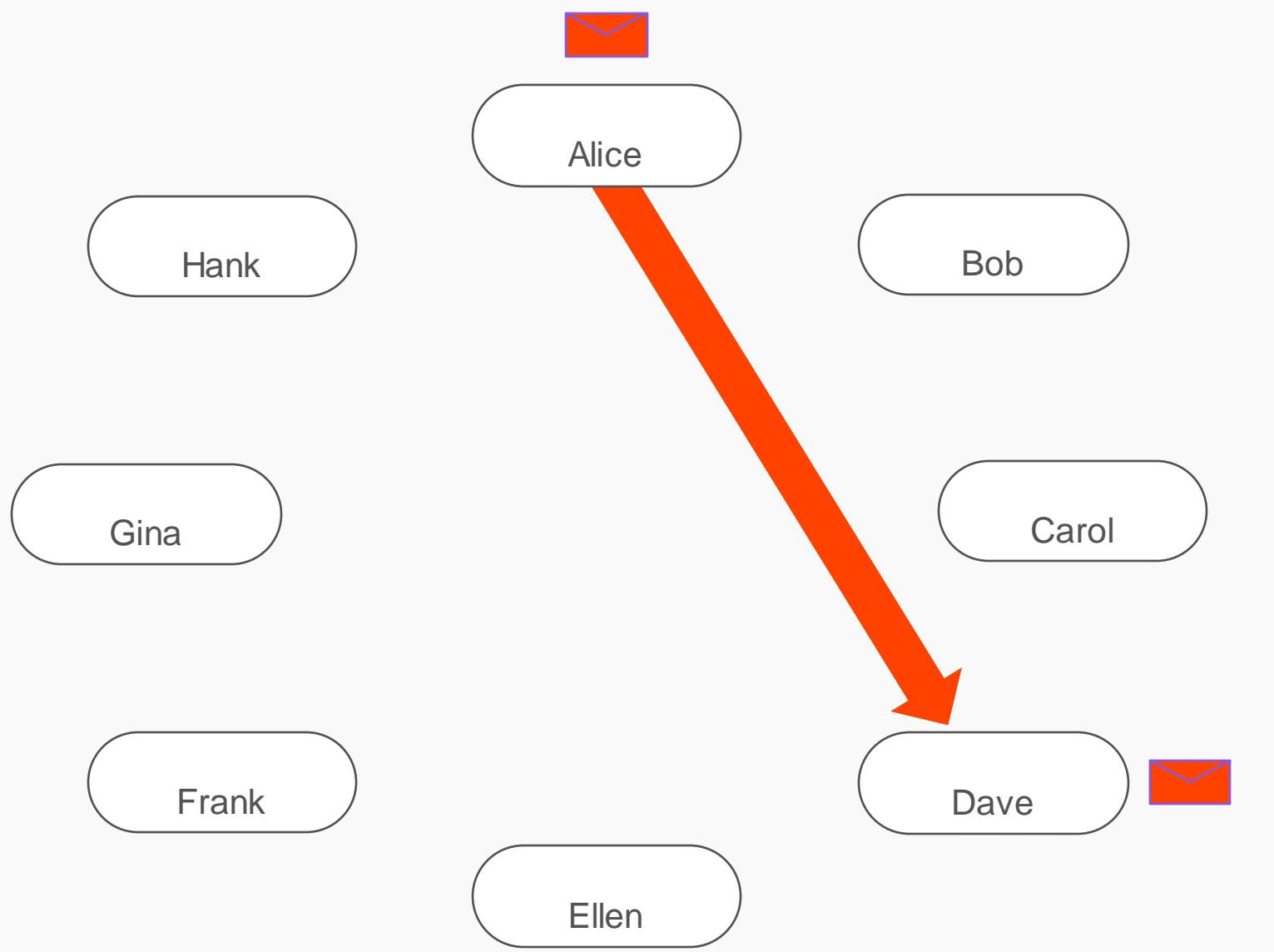


A brief overview of how hashgraph works

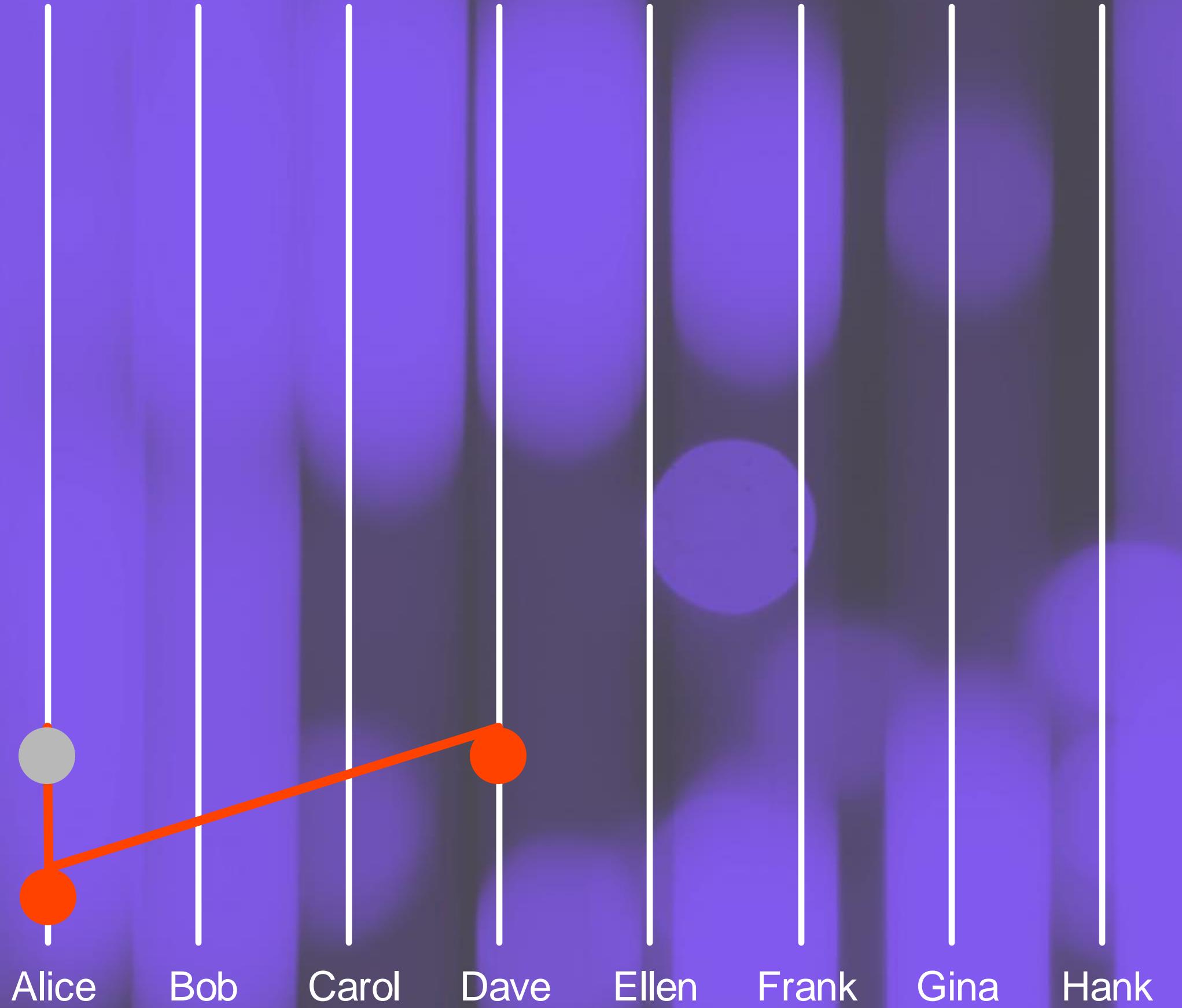


hedera.com

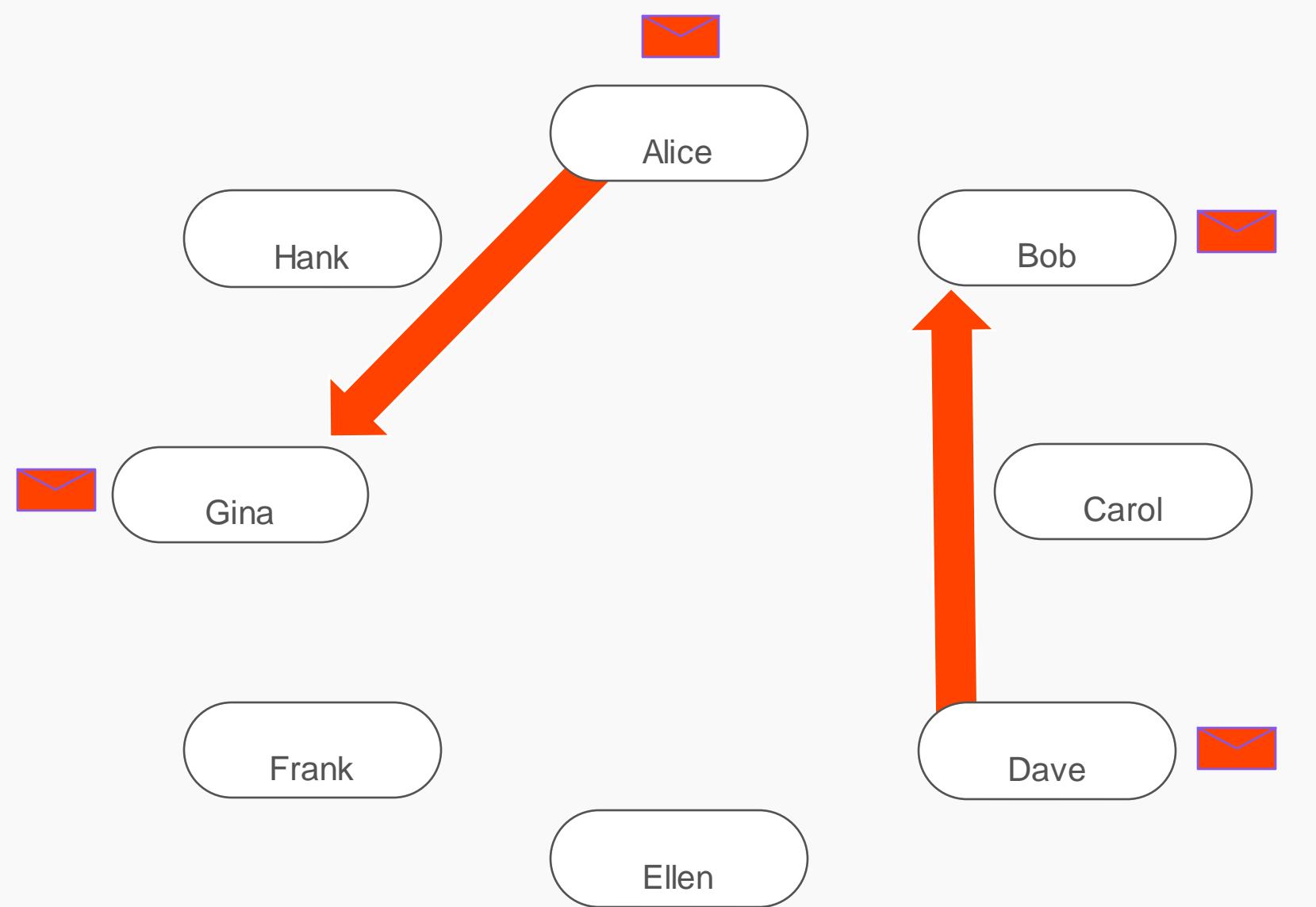
Gossip about gossip



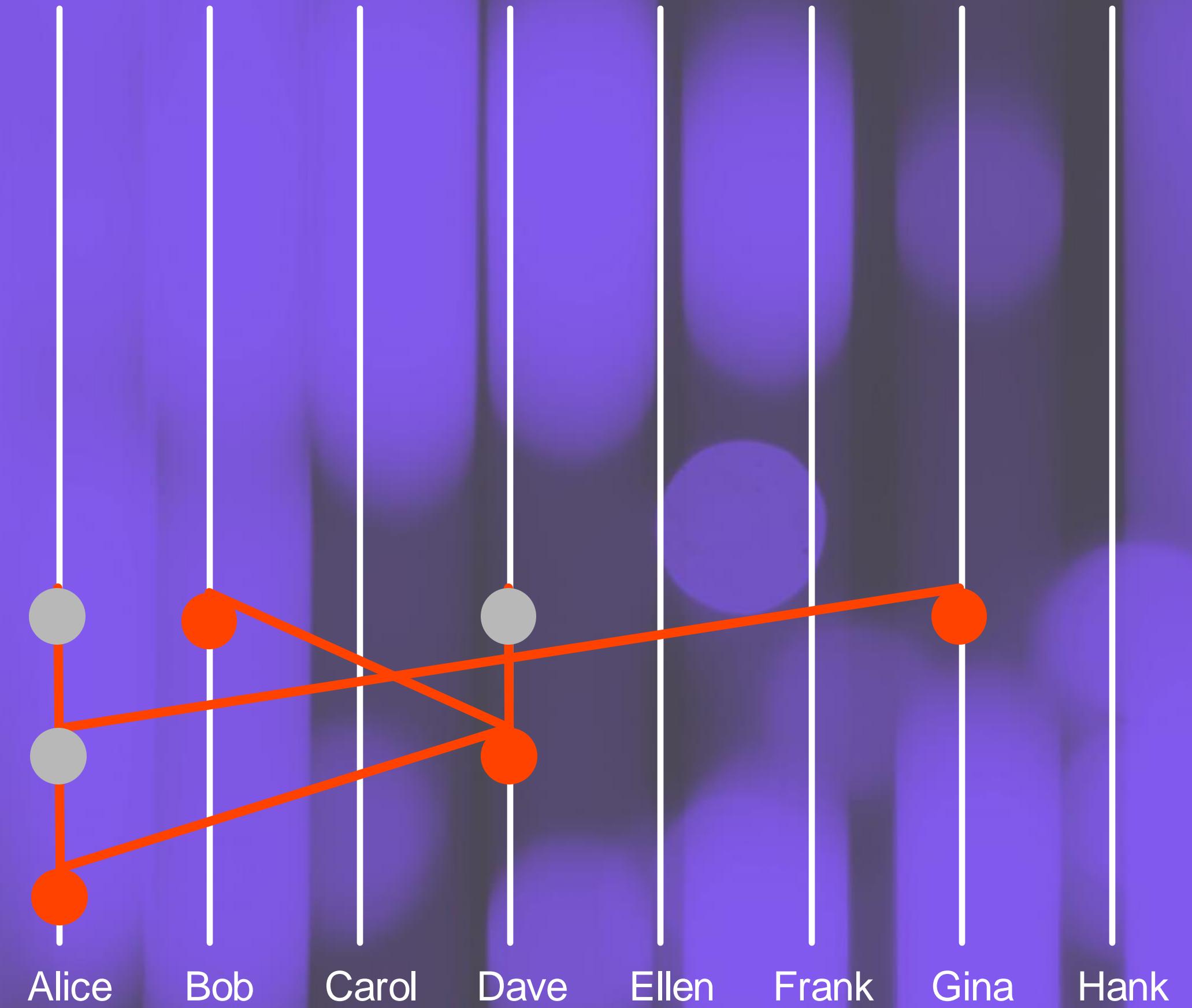
Gossip about Gossip



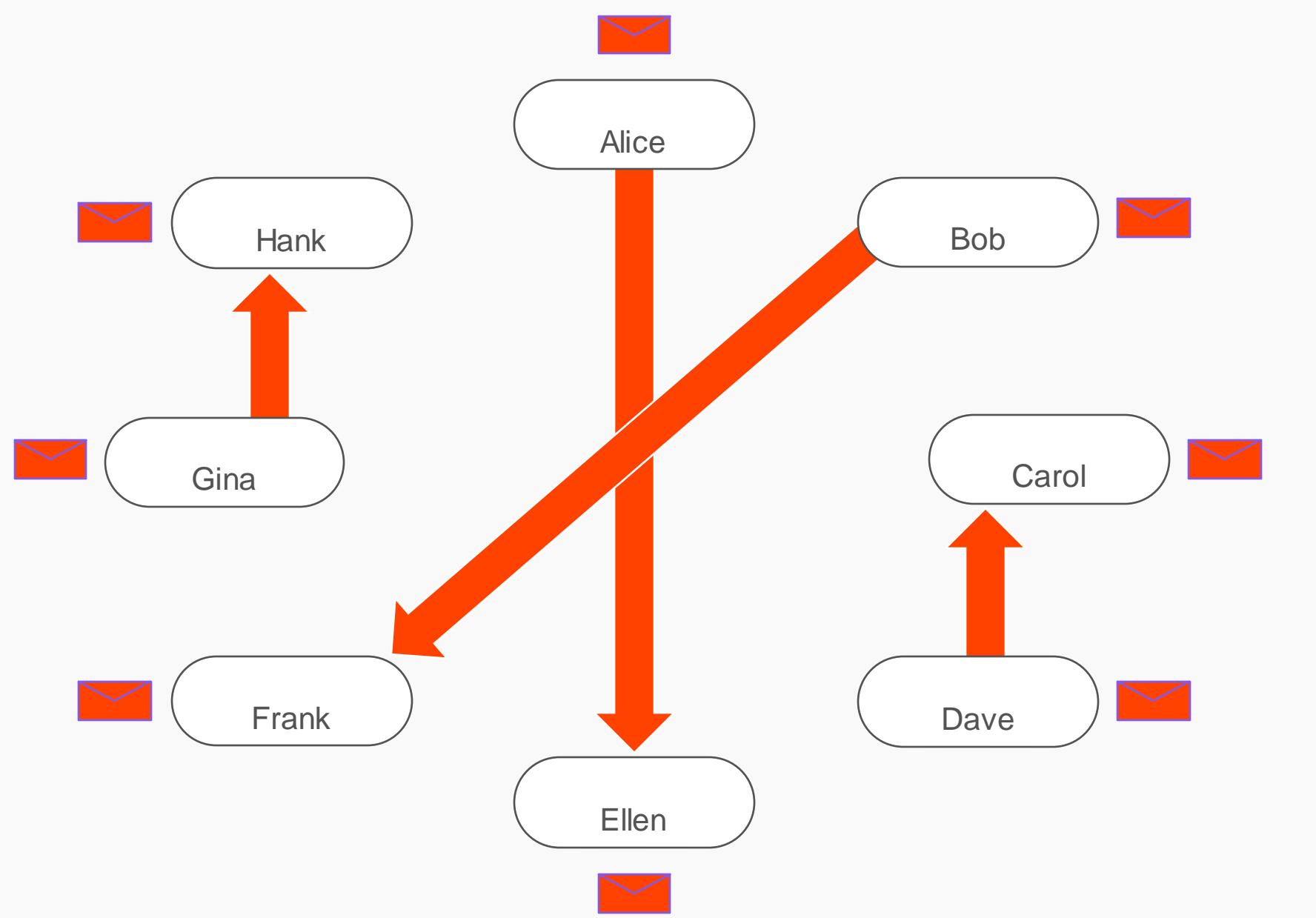
Gossip about gossip



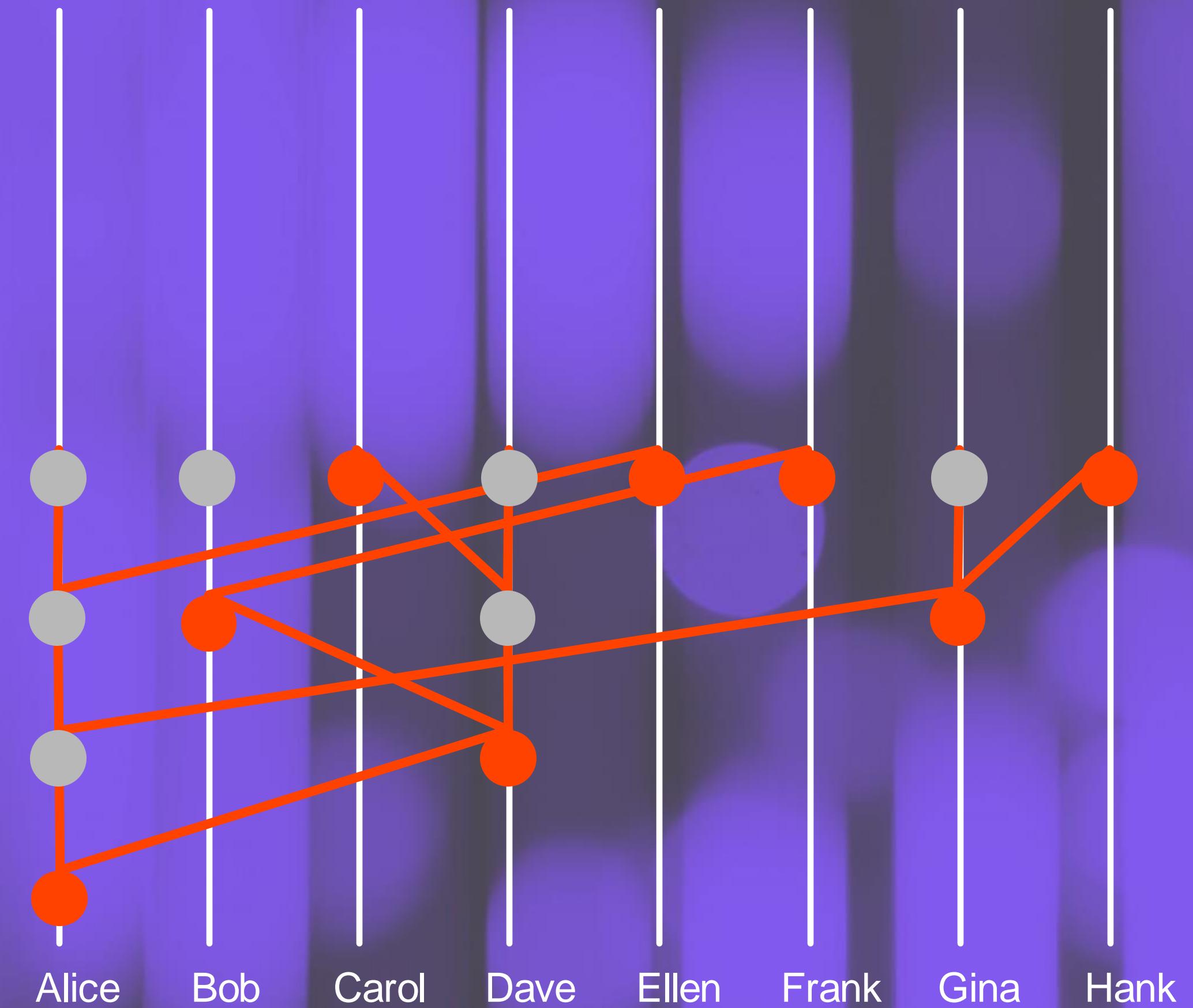
Gossip about Gossip



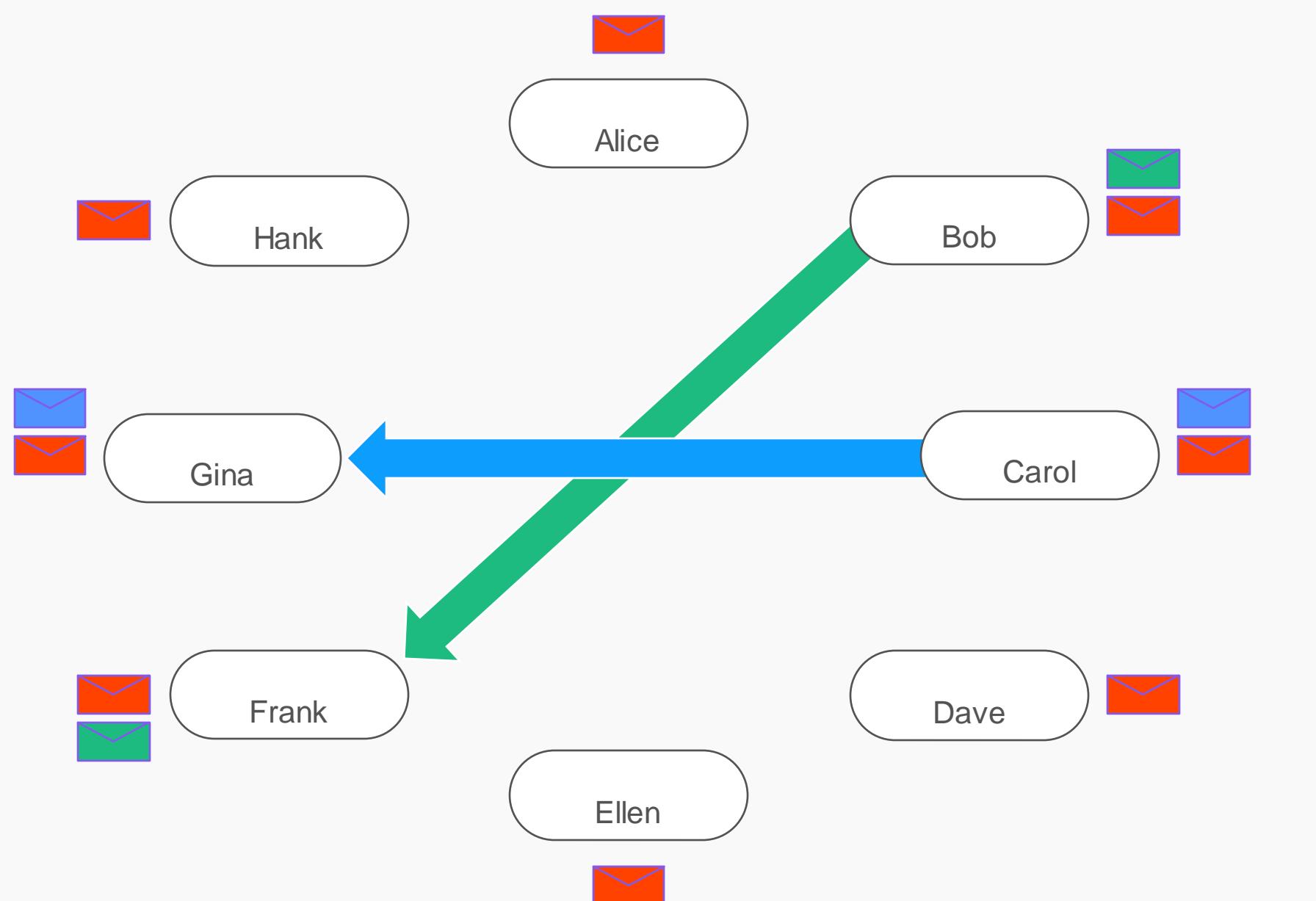
Gossip about gossip



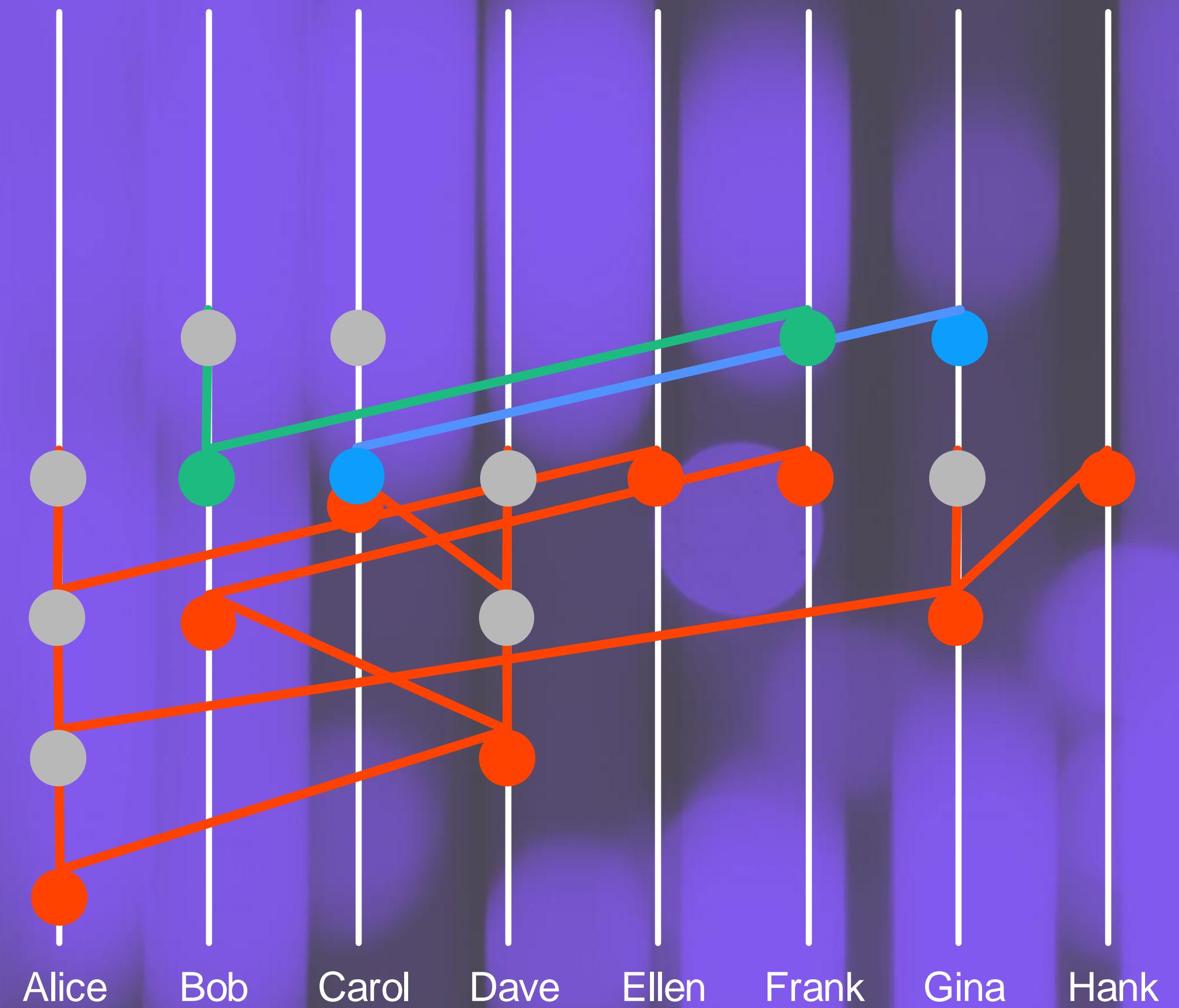
Gossip about Gossip



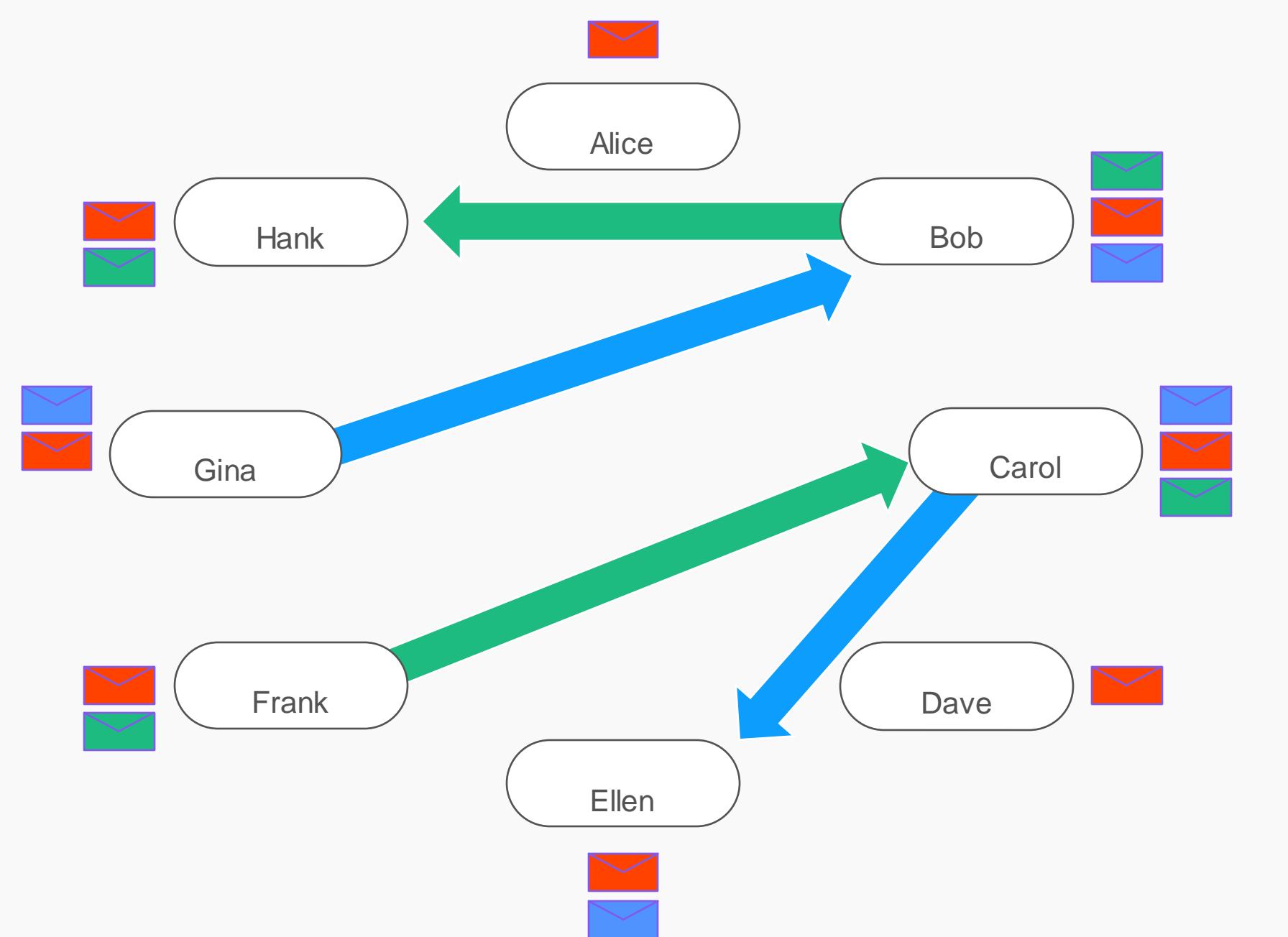
Gossip about gossip



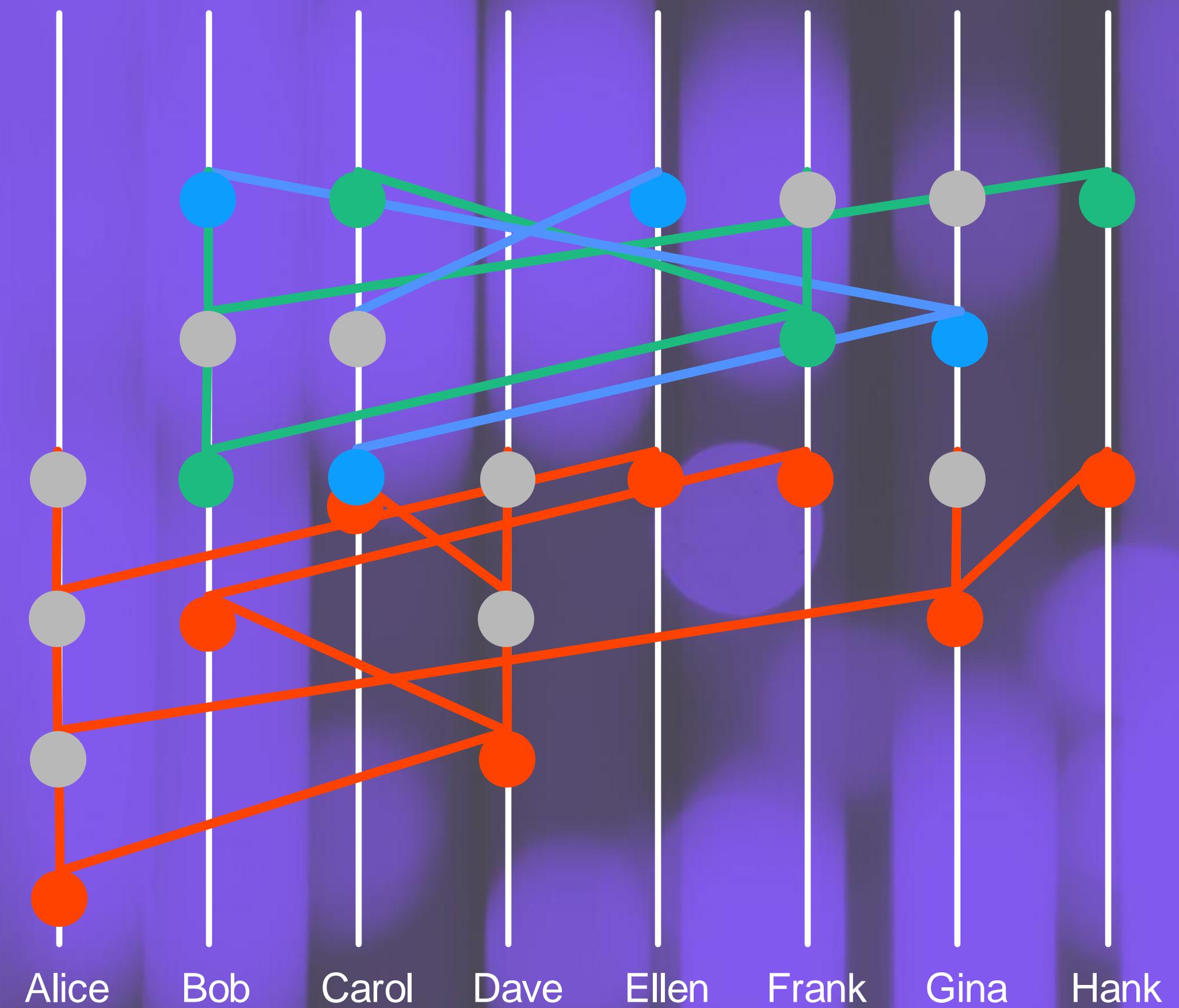
Gossip about Gossip



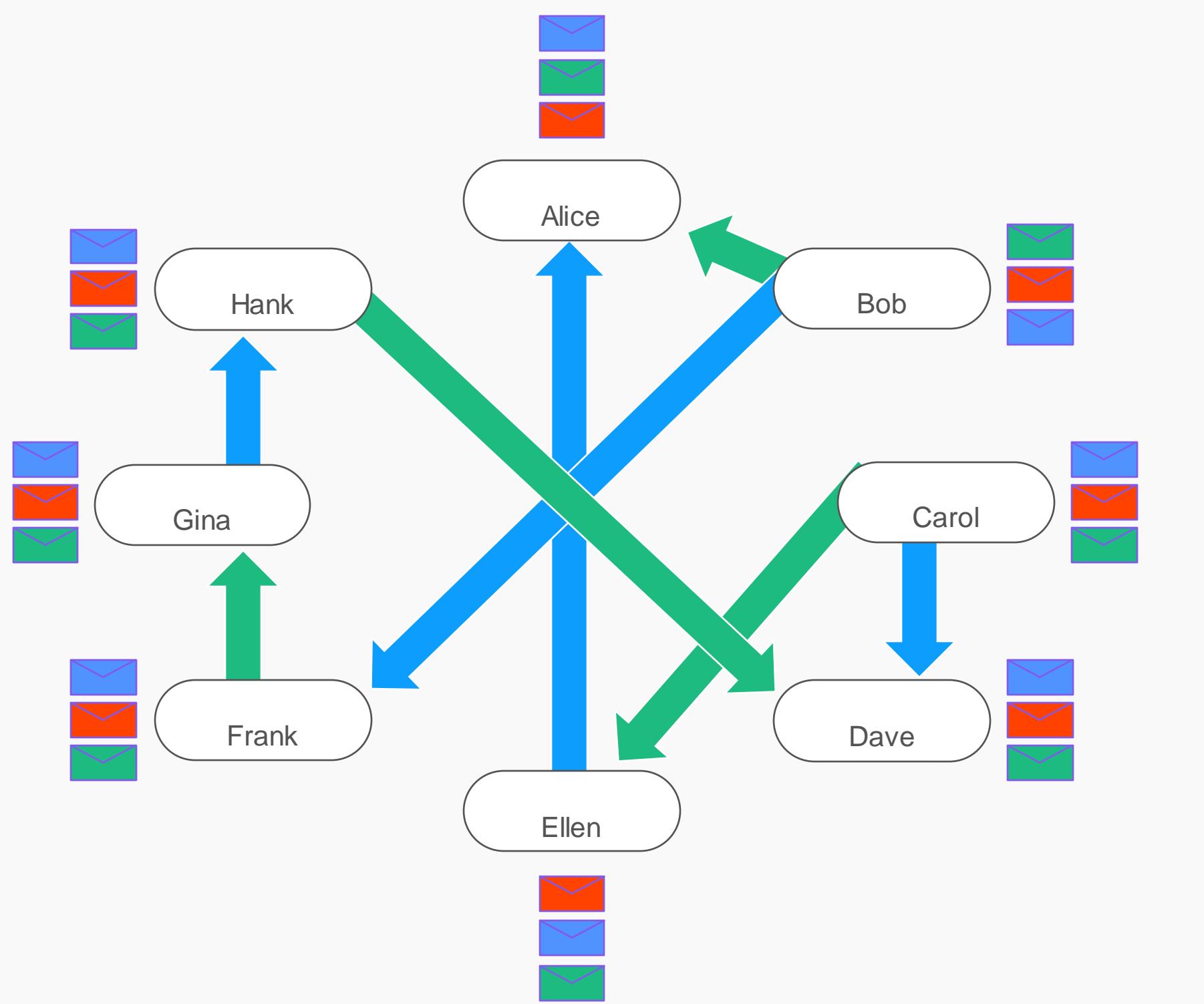
Gossip about gossip



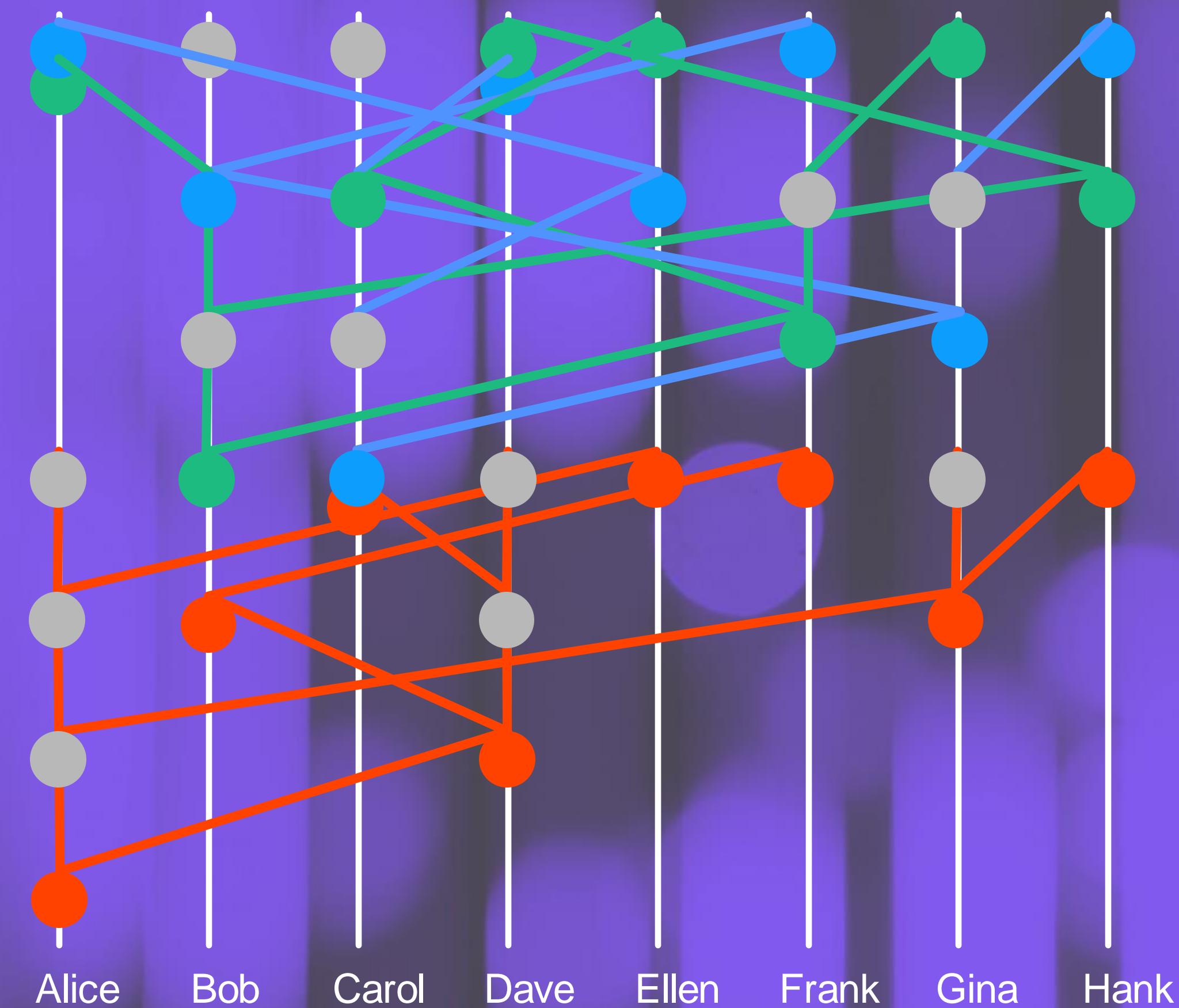
Gossip about Gossip



Gossip about gossip

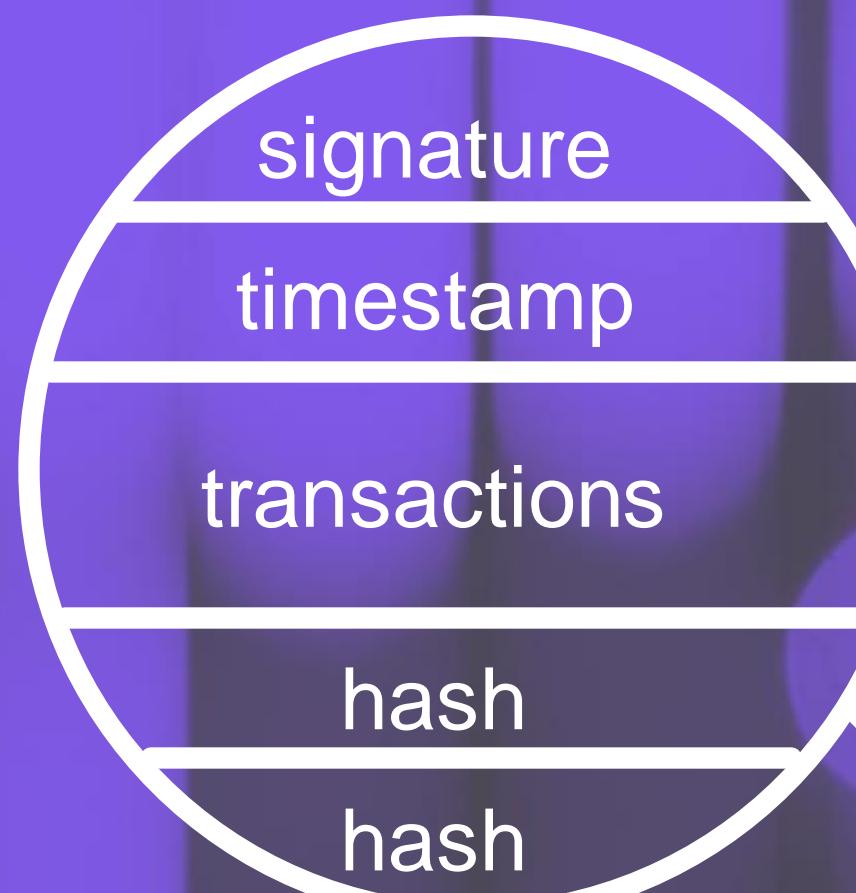


Gossip about Gossip



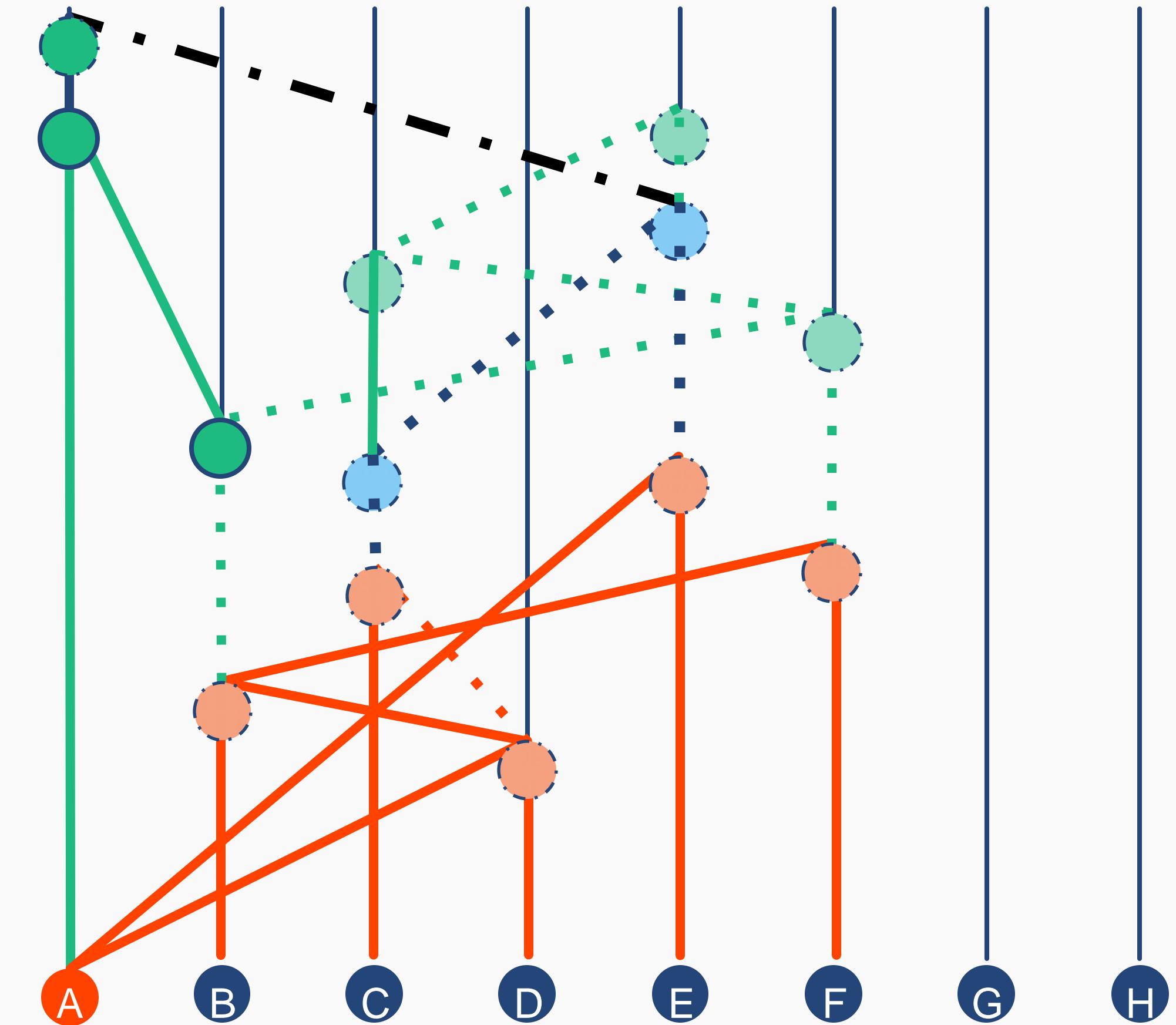


GOSSIP ABOUT GOSSIP



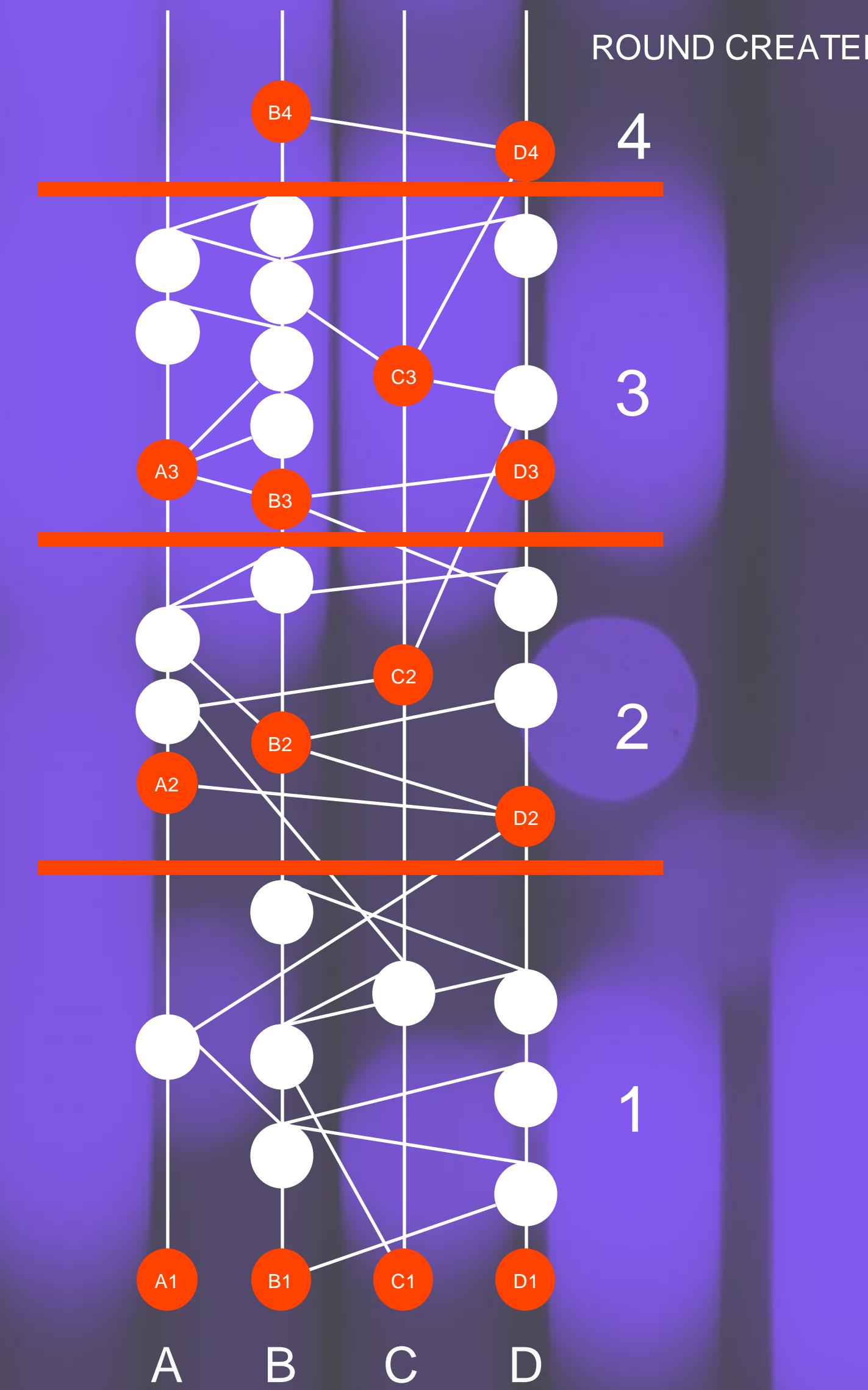
Share events unknown to each other
during gossip

Gossip about Gossip





VIRTUAL VOTING



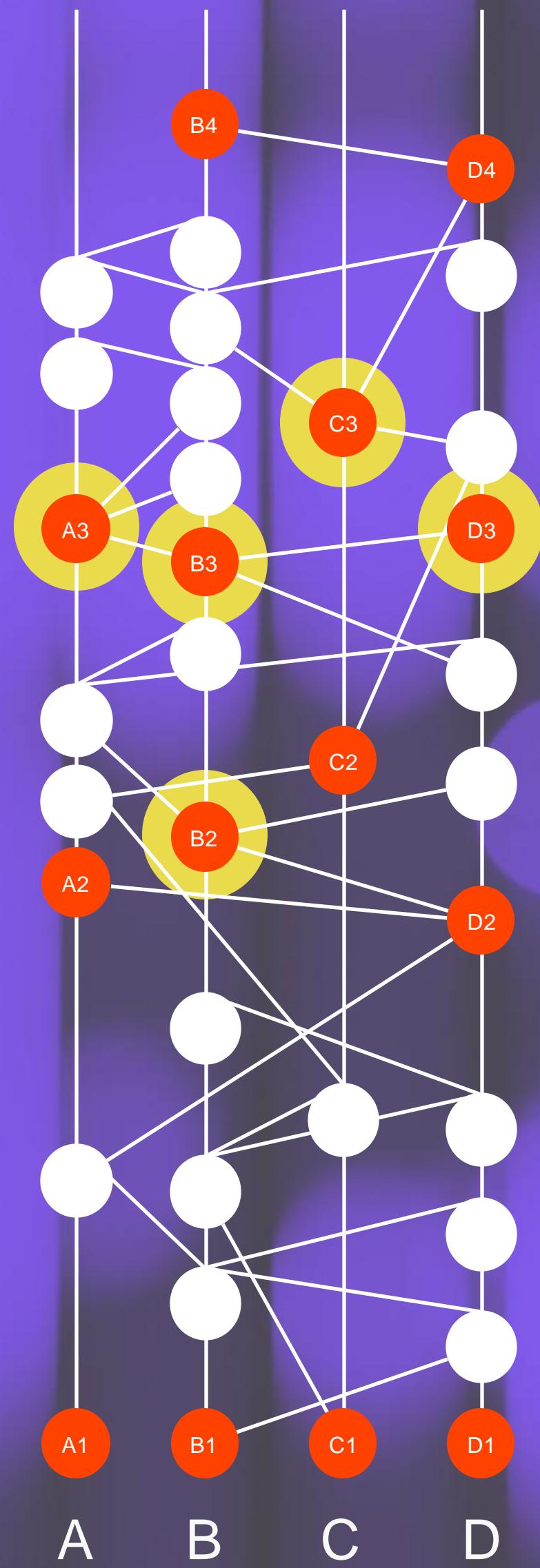
Rounds and witnesses

- Round: Created when the supermajority of witnesses in the previous round can be strongly seen
- Witness: First event in a round for a given node





VIRTUAL VOTING

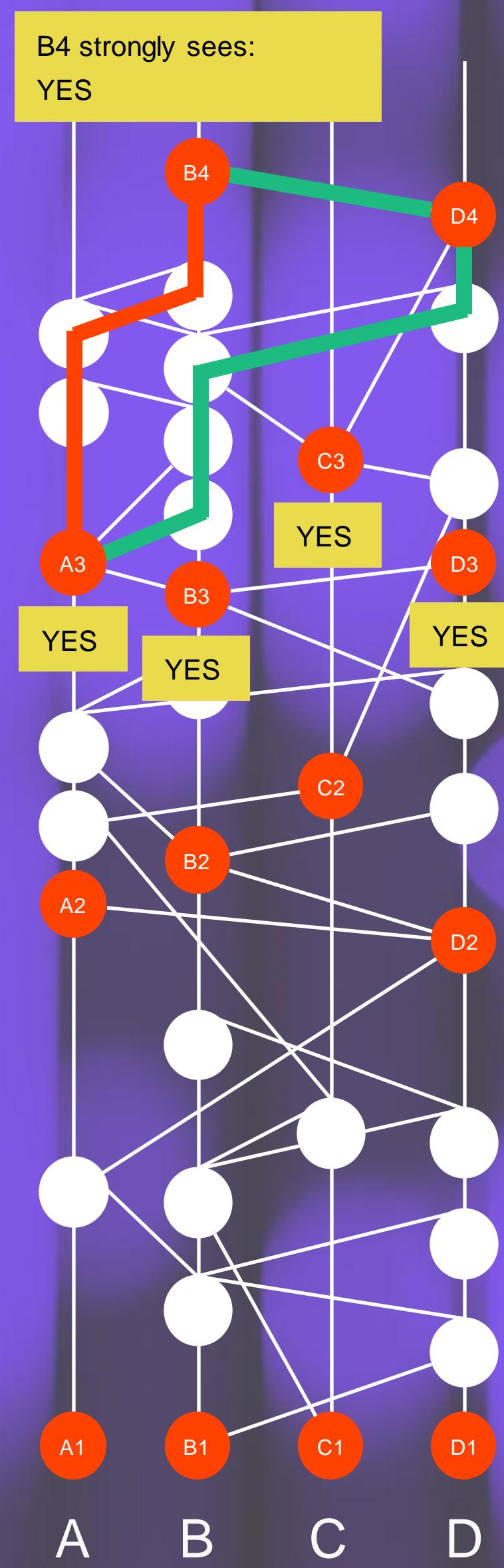


Famous witnesses

- Famous witnesses: means lots of people see it in the next round



VIRTUAL VOTING



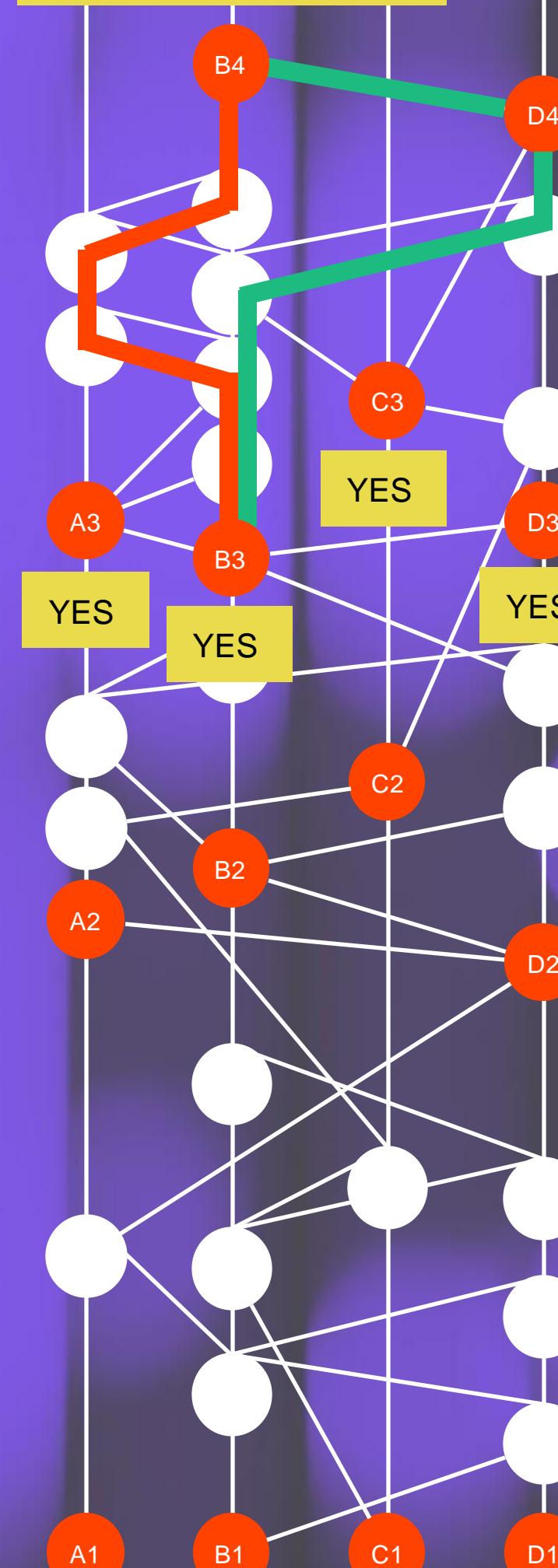
Counting votes

- Strongly seen: To strongly see someone, you have to see them through a supermajority. That means more than two-thirds of the population (or stake as we will see later).



VIRTUAL VOTING

B4 strongly sees:
YES, YES



A B C D



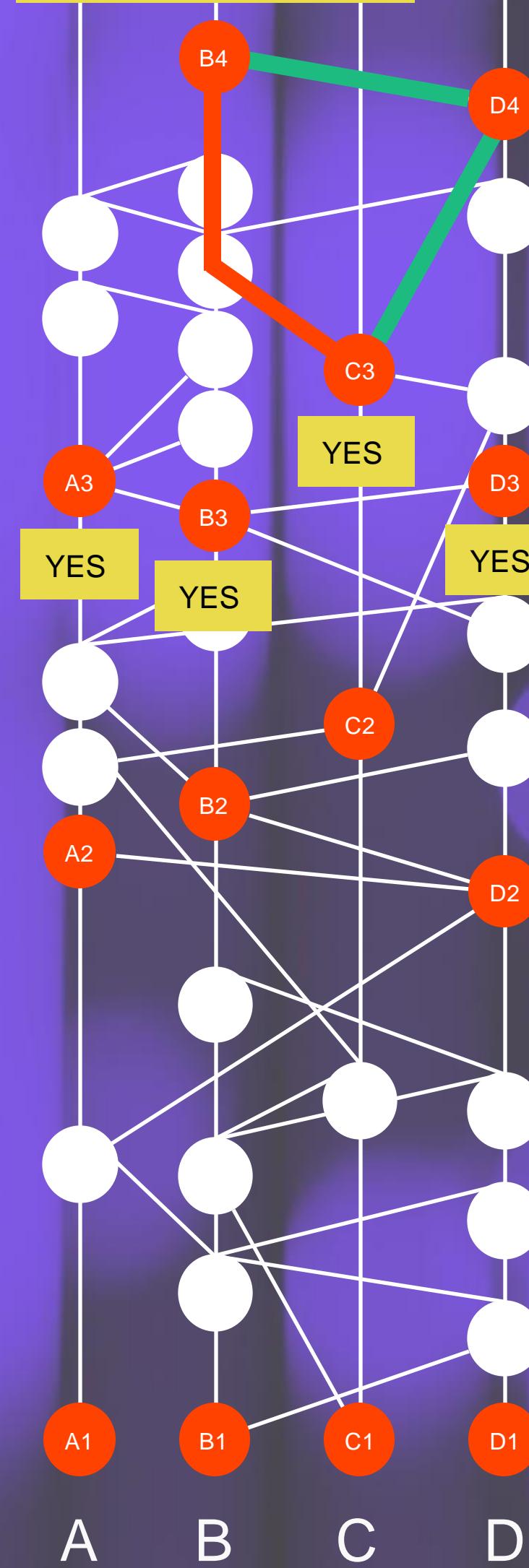
Counting votes

- Strongly seen: To strongly see someone, you have to see them through a supermajority. That means more than two-thirds of the population (or stake as we will see later).



VIRTUAL VOTING

B4 strongly sees:
YES, YES, YES



Counting votes

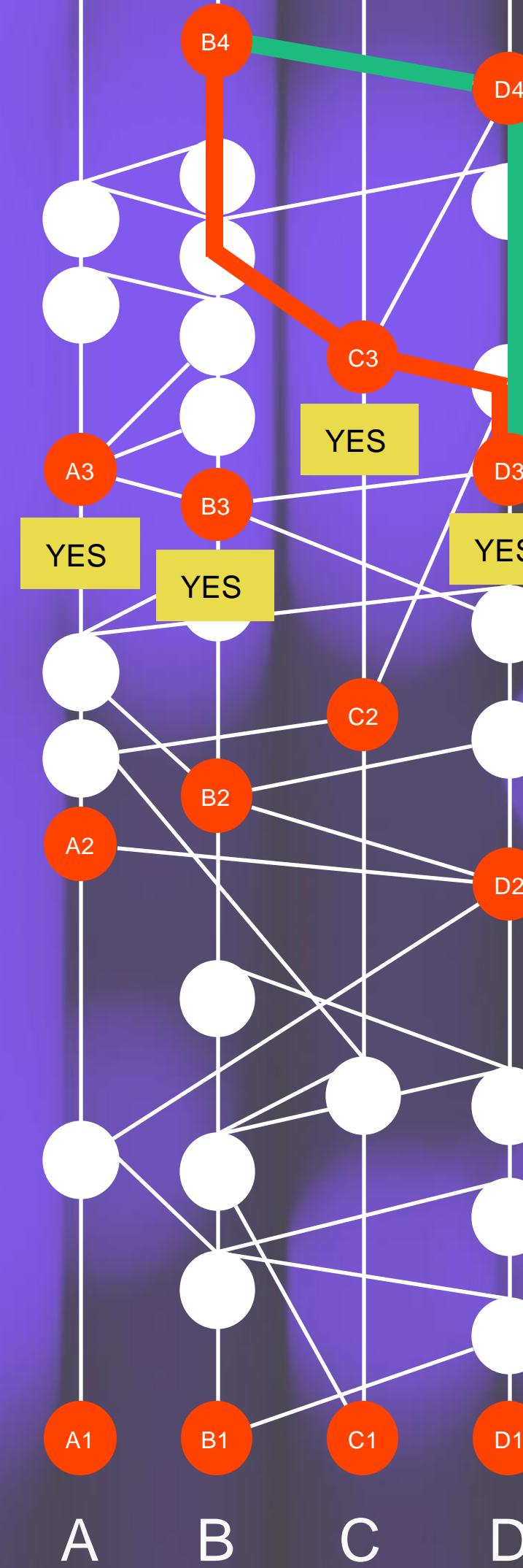
- Strongly seen: To strongly see someone, you have to see them through a supermajority. That means more than two-thirds of the population (or stake as we will see later).





VIRTUAL VOTING

B4 strongly sees:
YES, YES, YES, YES



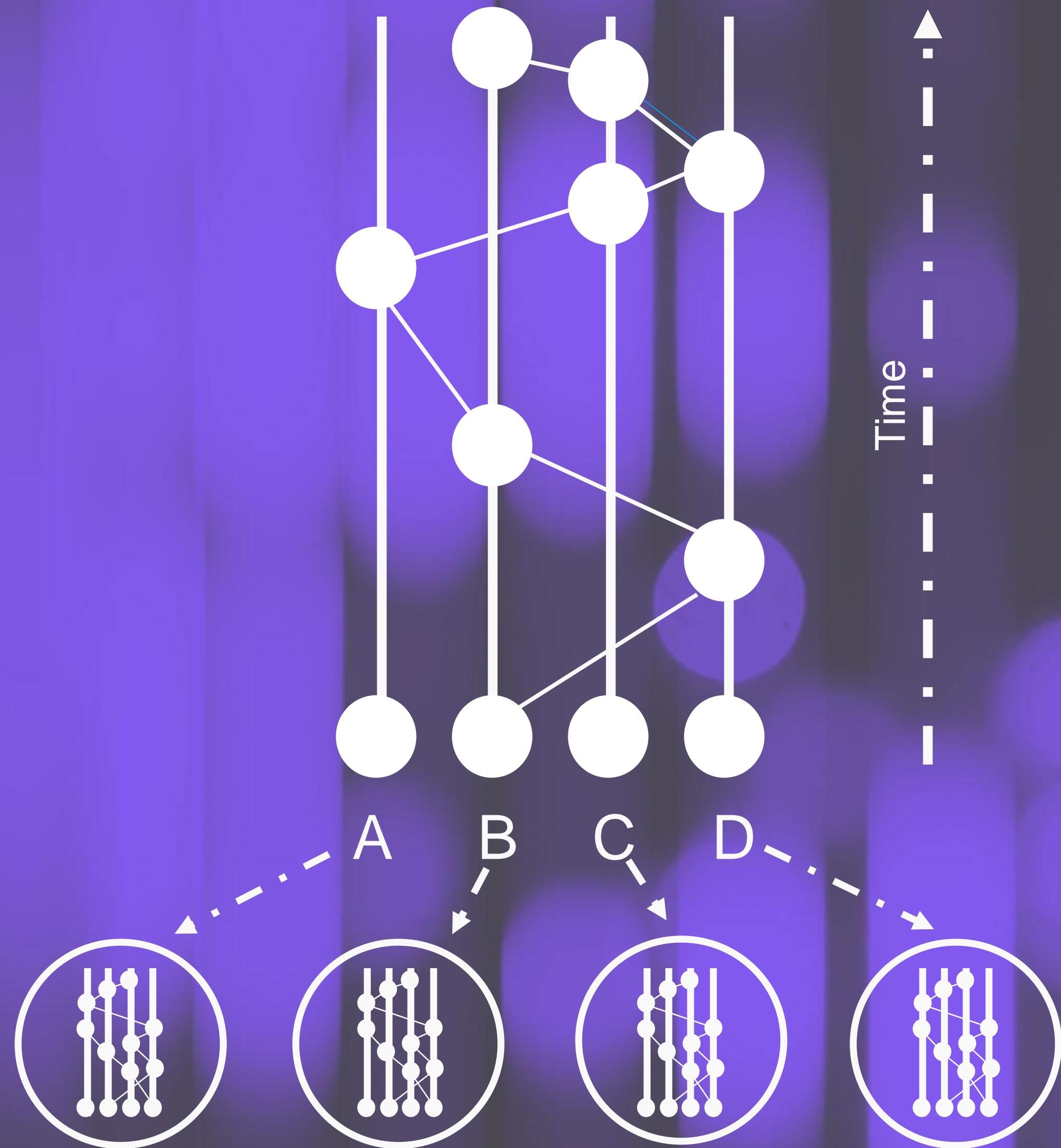
Counting votes

- Strongly seen: To strongly see someone, you have to see them through a supermajority; that means more than two-thirds of hbar staked.



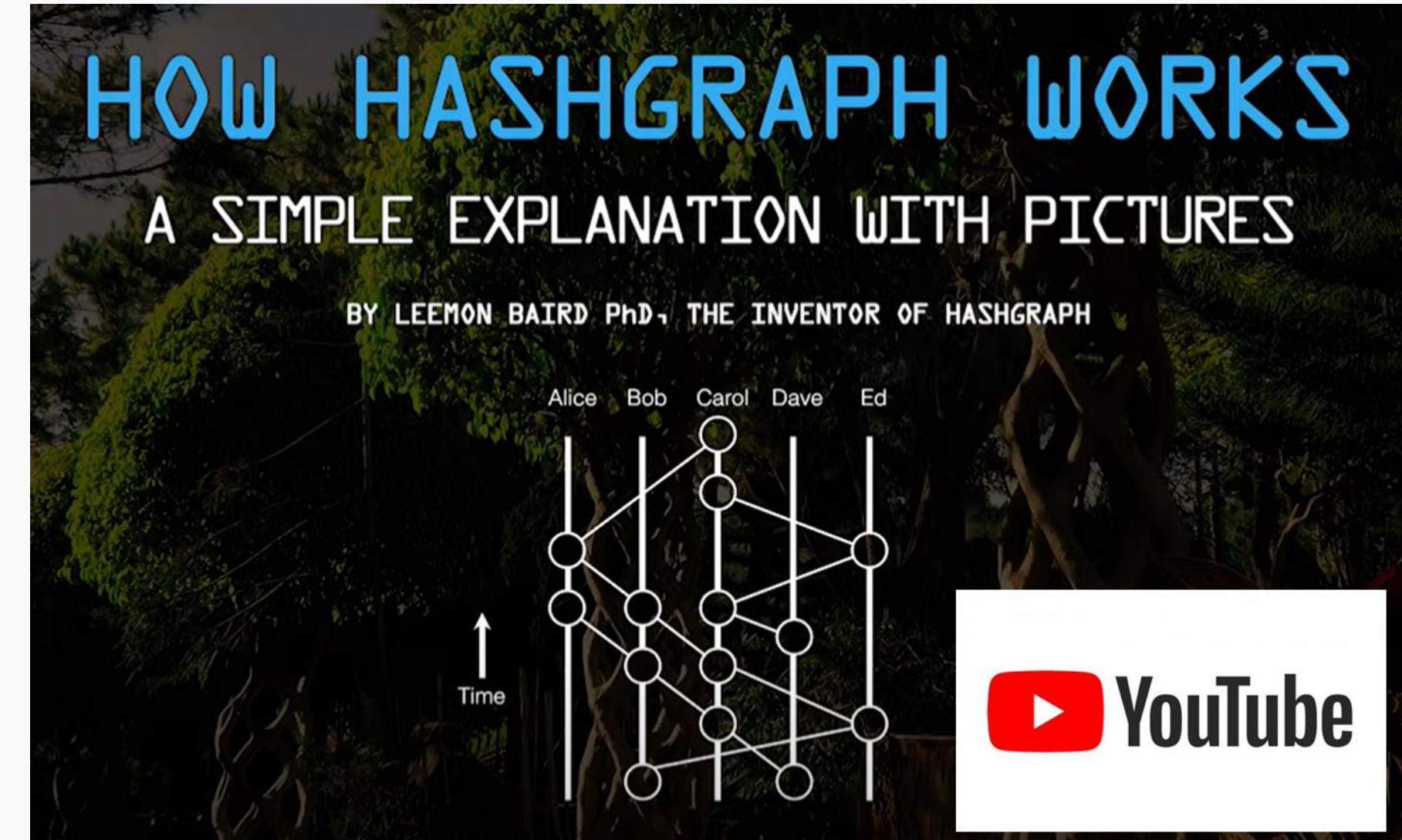


GOSSIP ABOUT GOSSIP



The hashgraph gives each node the entire history of who has talked to who and when

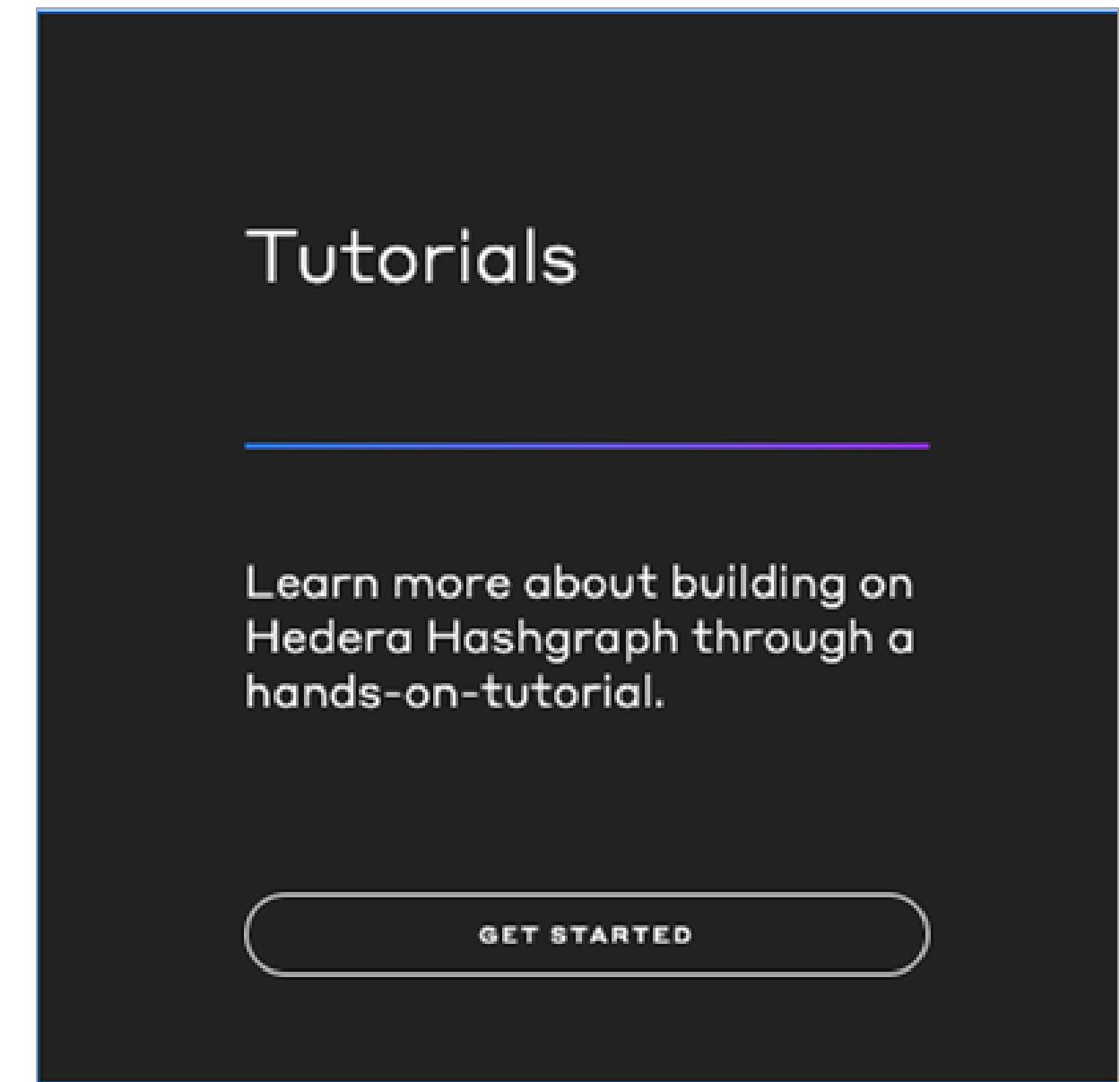
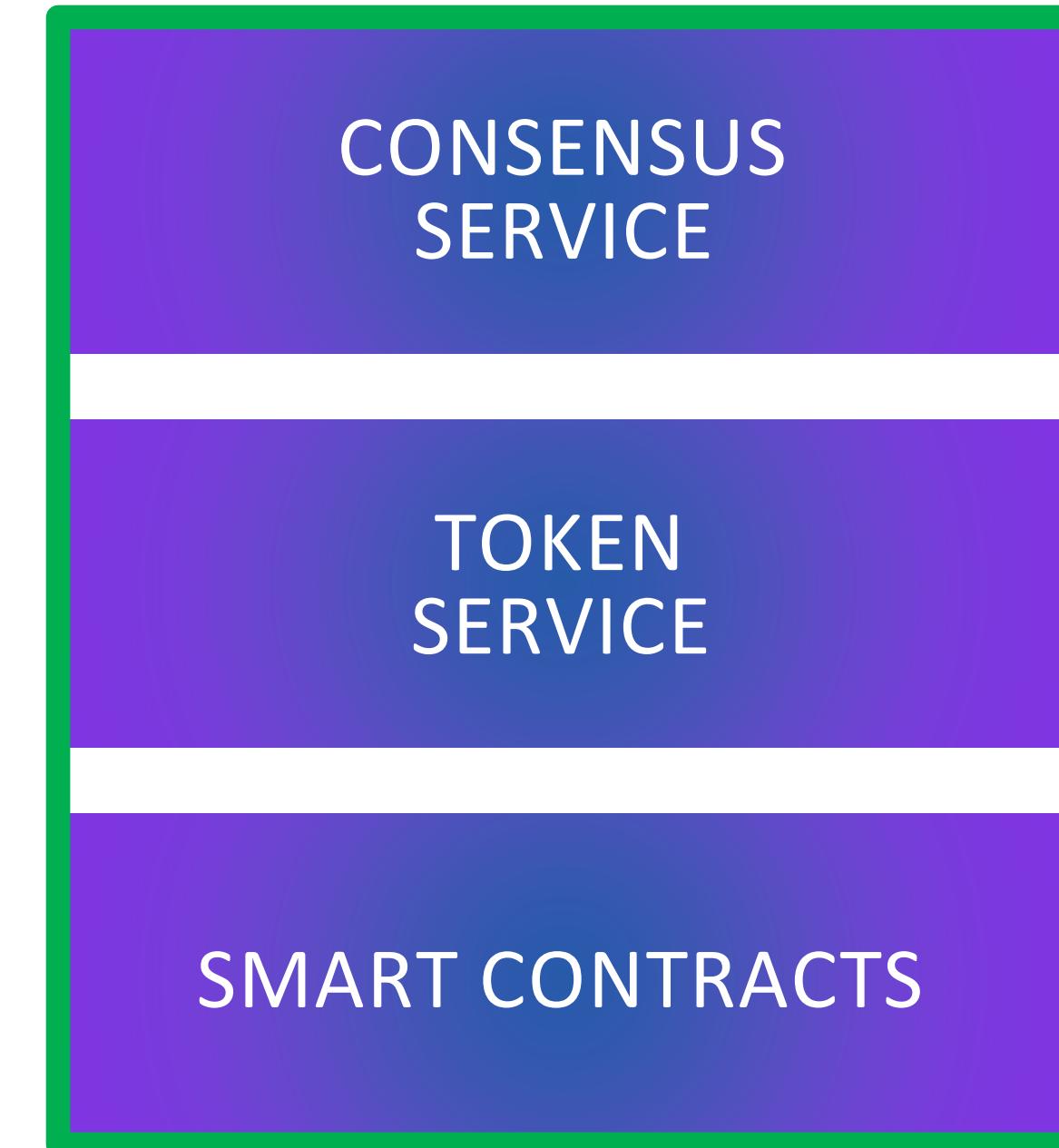
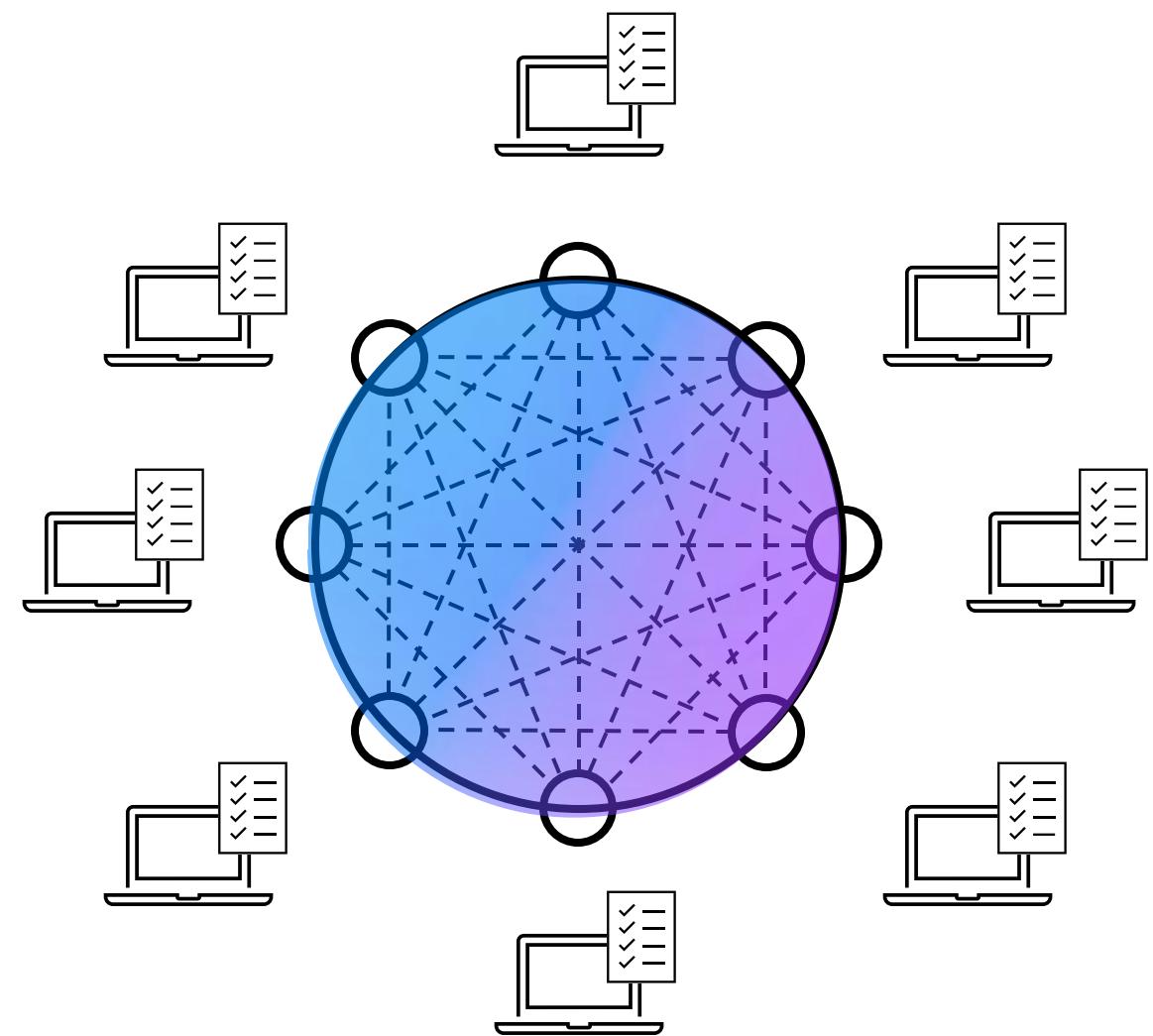
No need to send multiple ballots and receipts over the network as in historical voting models



All nodes have the same picture of the hashgraph, except for the very latest events which will eventually sync



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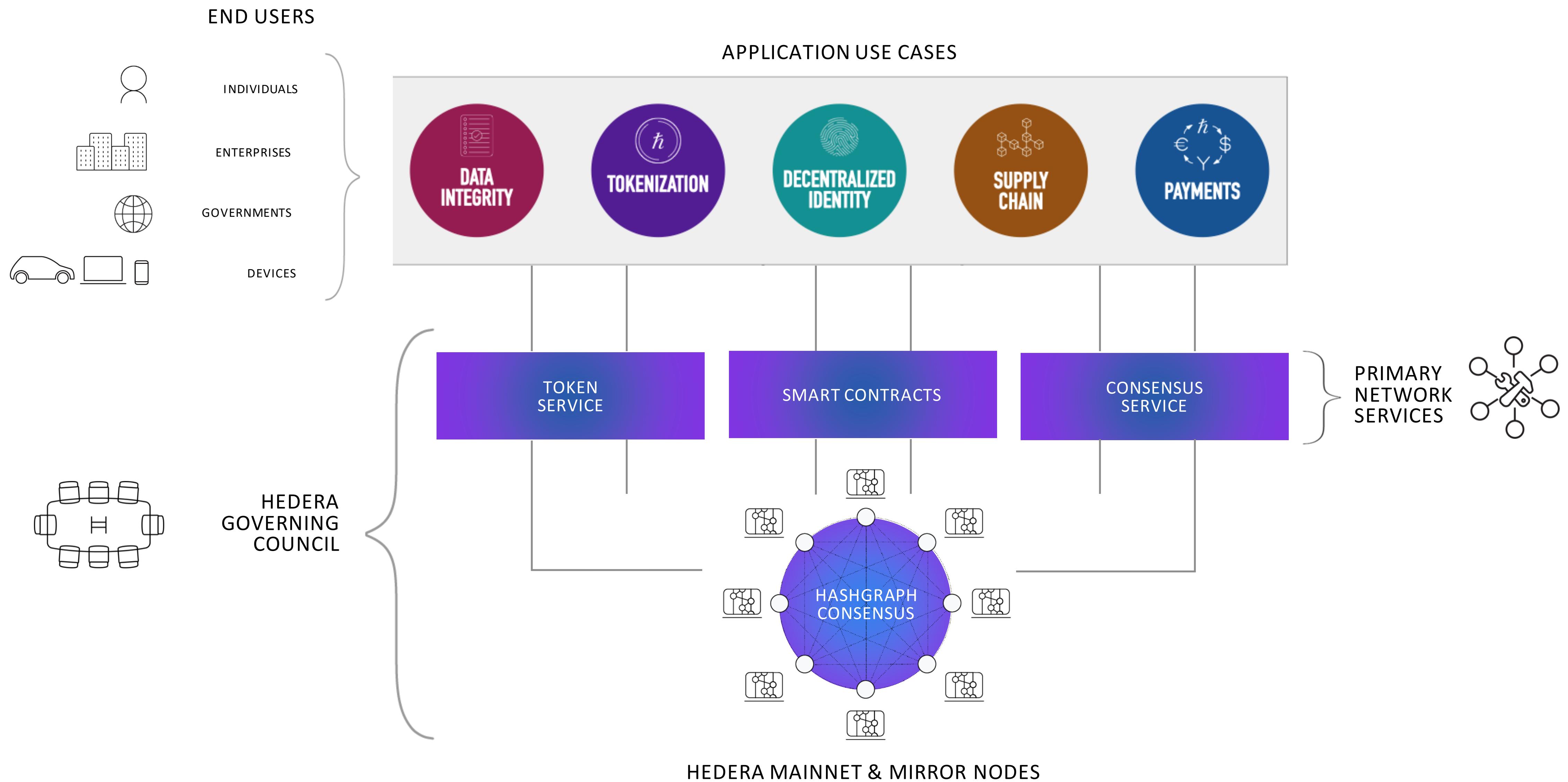


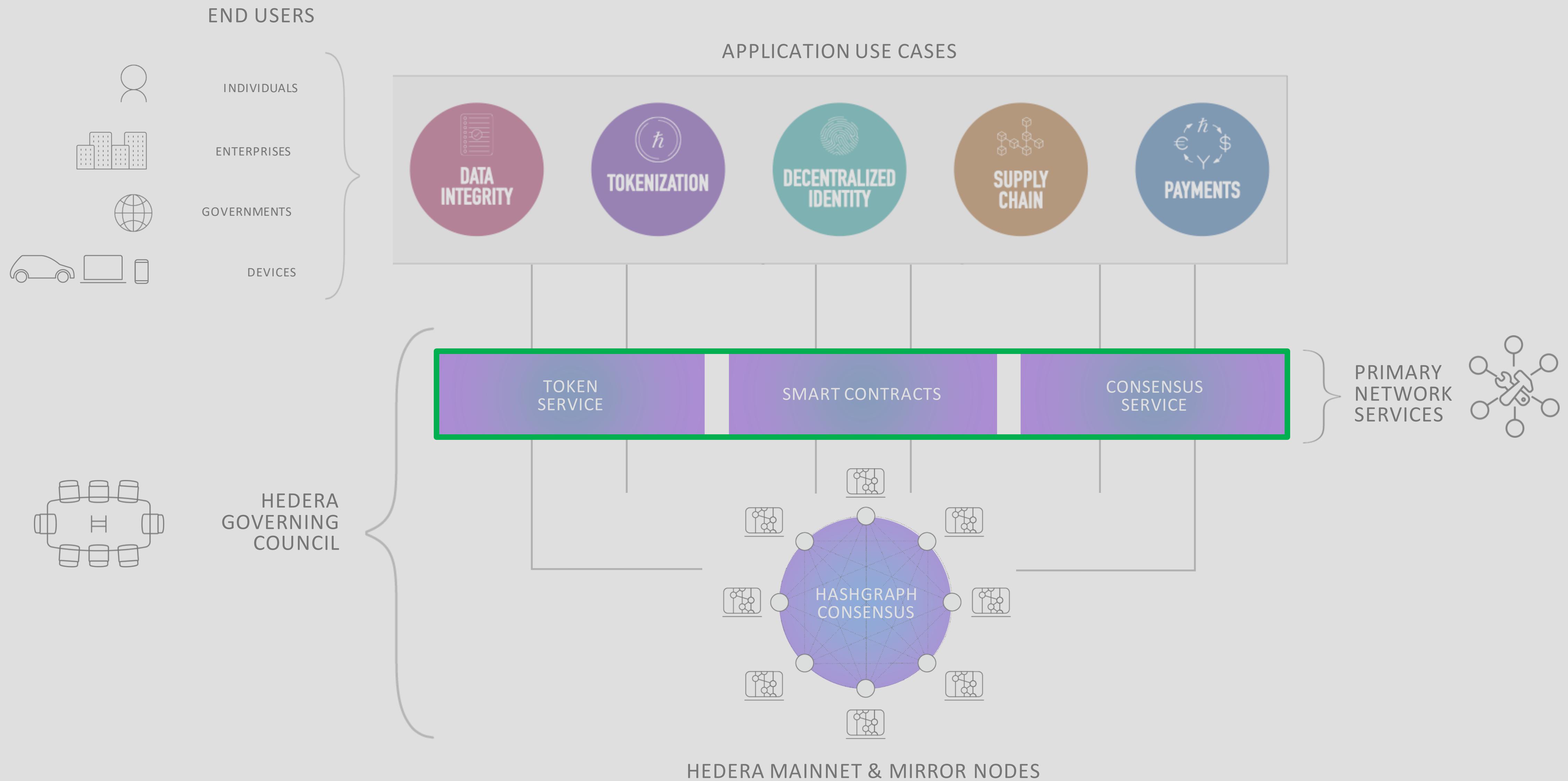
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Why build on Hedera?

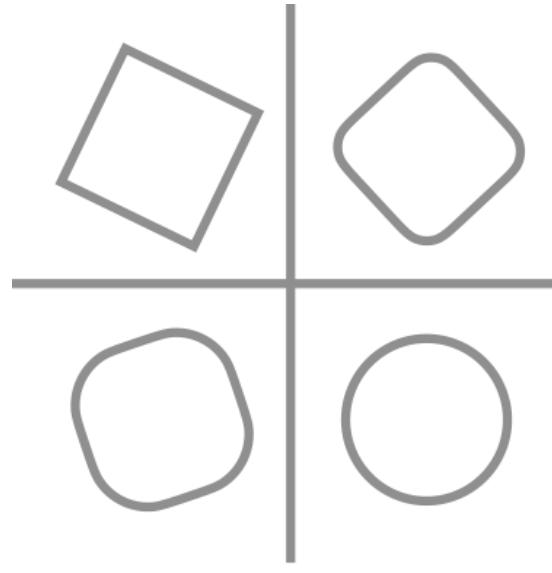
Hedera helps you meet strict requirements in the following areas...



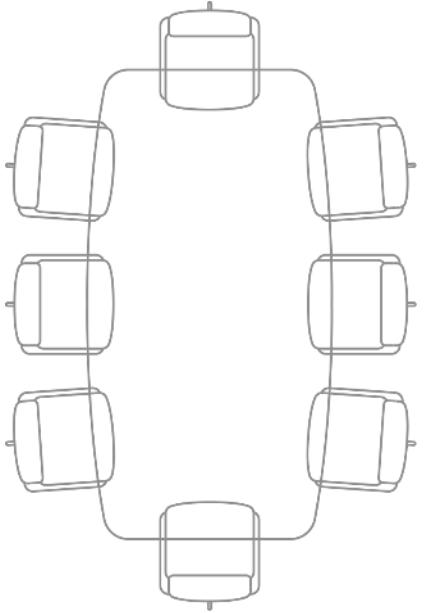
Performance



Security



Stability



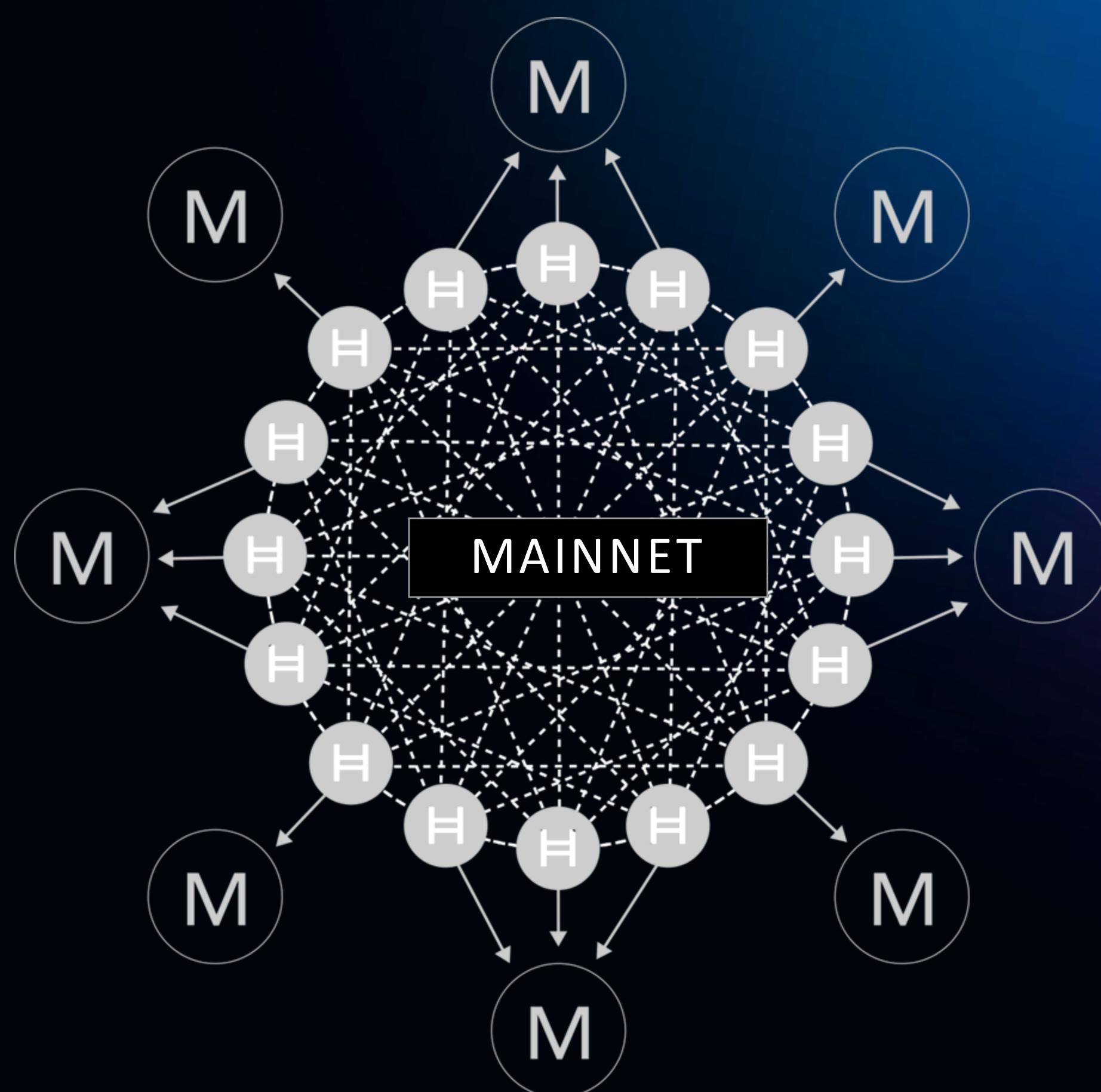
Governance

HEDERA MAINNET & MIRRORNET



MAINNET

- Can submit HAPI (Hedera API) transactions to the Hedera network
- Contributes to consensus on transactions
- Creates events on the Hedera network
- Requires HBAR cryptocurrency payment for transactions & queries



MIRRORNET

- Maintains a history of some or all the Hedera network state and ledger of transactions
- Value-added services (managed read-only node, etc.)
- Enables analytical insight into an application's state / transactions
- Publish and subscribe capabilities



Hedera™ Hashgraph

hedera.com



Cryptocurrency

“Hedera is the only platform we've seen that can cope with the volume of split-second transactions that need to take place.”

Jiro Olcott | Director | Power Transition

Scalable transactions

Guaranteed finality in 2-5 seconds

10,000 tps, in a single shard

Used to pay for network fees

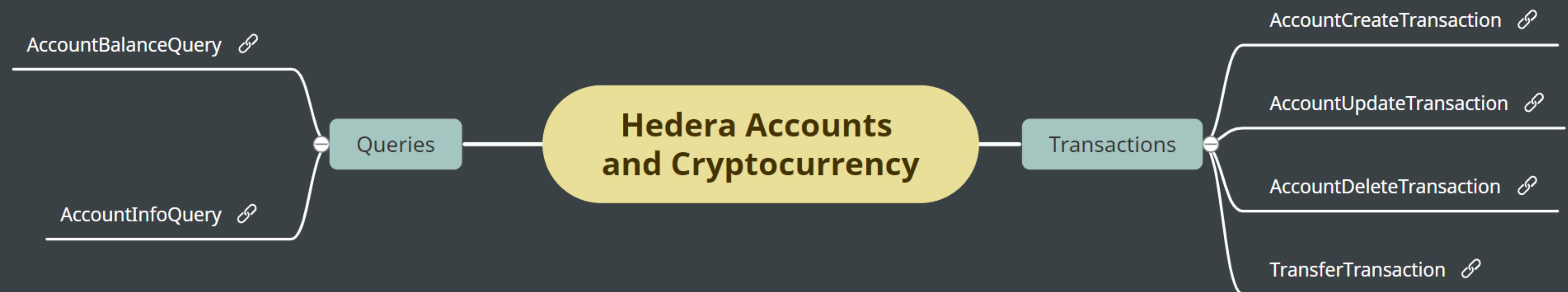
HBAR is Hedera's native coin

Used to pay for each network API call

Security Mechanism

Hedera is a proof of stake network

Malicious actors would need to control 1/3rd of the total HBAR supply in order to launch an attack



Connect to a network

Get a testnet account! (<https://portal.hedera.com/register>)

Terms Of Service'. A purple 'START BUILDING' button is at the bottom, and a 'Log In' link is at the bottom right." data-bbox="120 133 390 919"/>

Create a developer **Testnet** account

Create a developer portal profile to start building decentralized applications.

Email

Password

Confirm Password

Country of residence

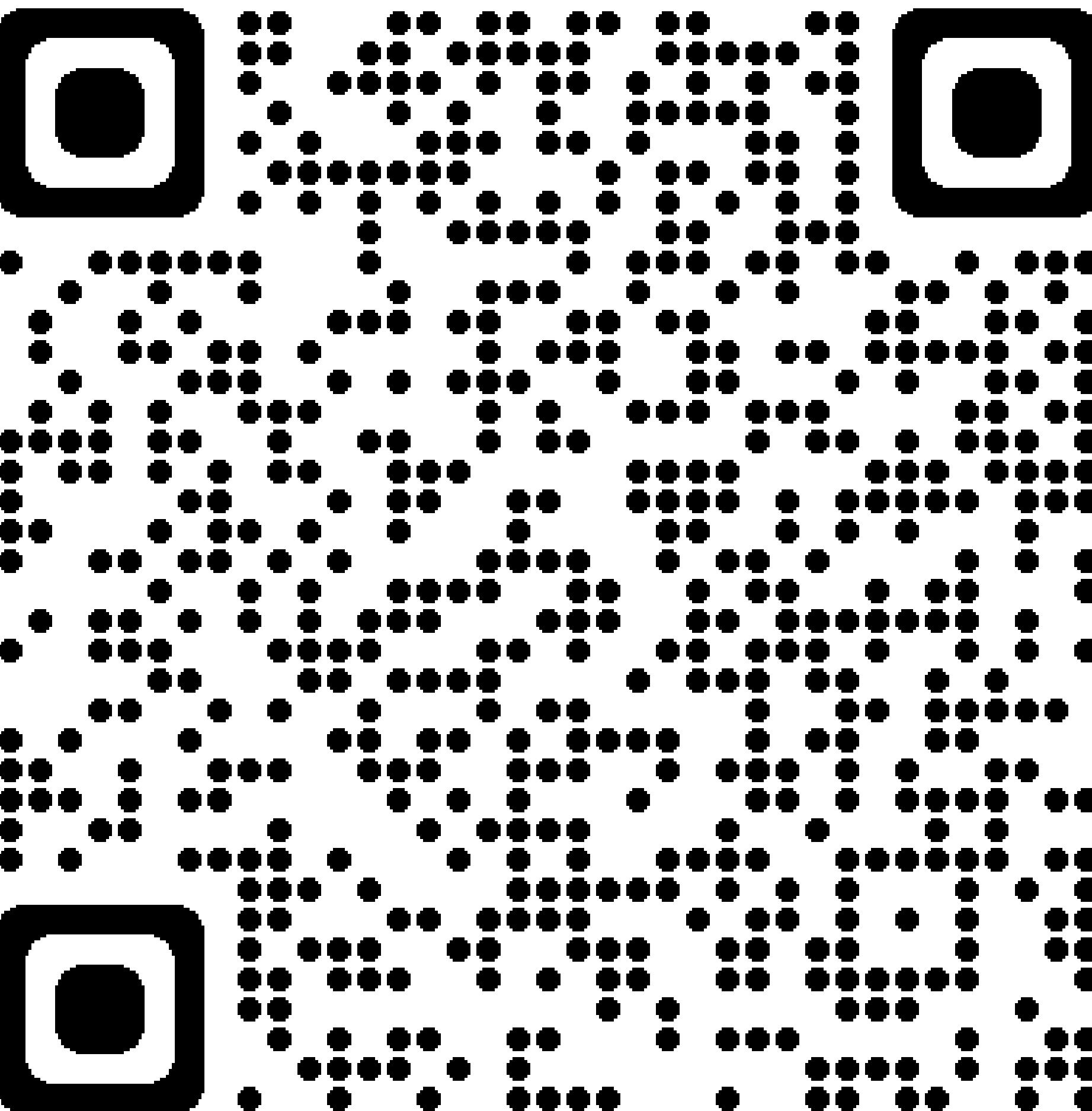
Country of citizenship

Role

By creating a Hedera profile you agree to the [Terms Of Service](#).

START BUILDING

Already have an account? [Log In](#)



Update .env file with account details

```
#TESTNET CREDENTIALS
```

```
OPERATOR_ID = 0.0.17994793
```

```
OPERATOR_PBKEY = 302a[REDACTED]
```

```
OPERATOR_PVKEY = 302e[REDACTED]
```

```
TREASURY_ID = 0.0.17994793
```

```
TREASURY_PBKEY = 302a[REDACTED]
```

```
TREASURY_PVKEY = 302e[REDACTED]
```

```
ALICE_ID = 0.0.17994793
```

```
ALICE_PBKEY = 302a[REDACTED]
```

```
ALICE_PVKEY = 302e[REDACTED]
```

portal.hedera.com

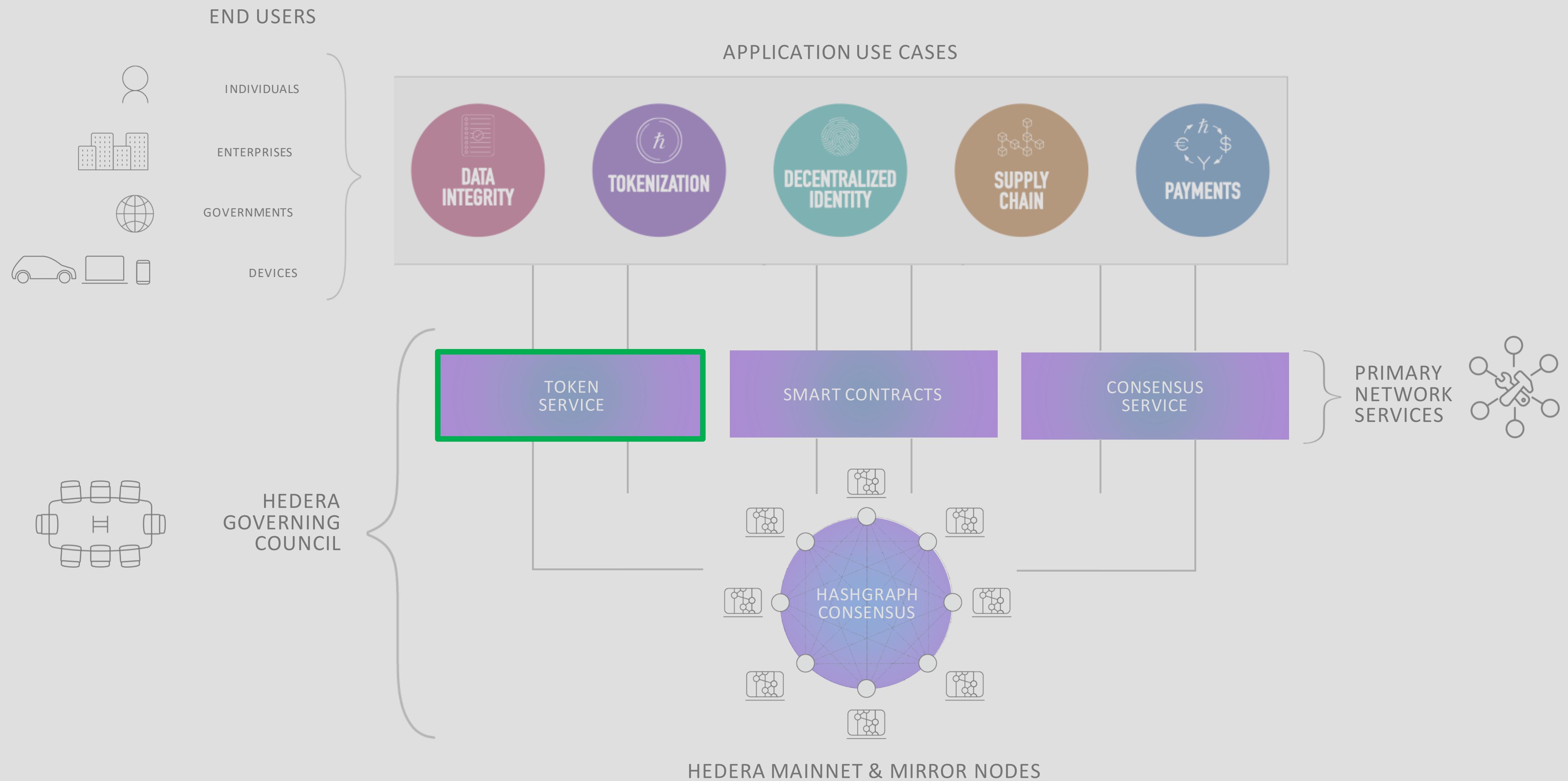
OR

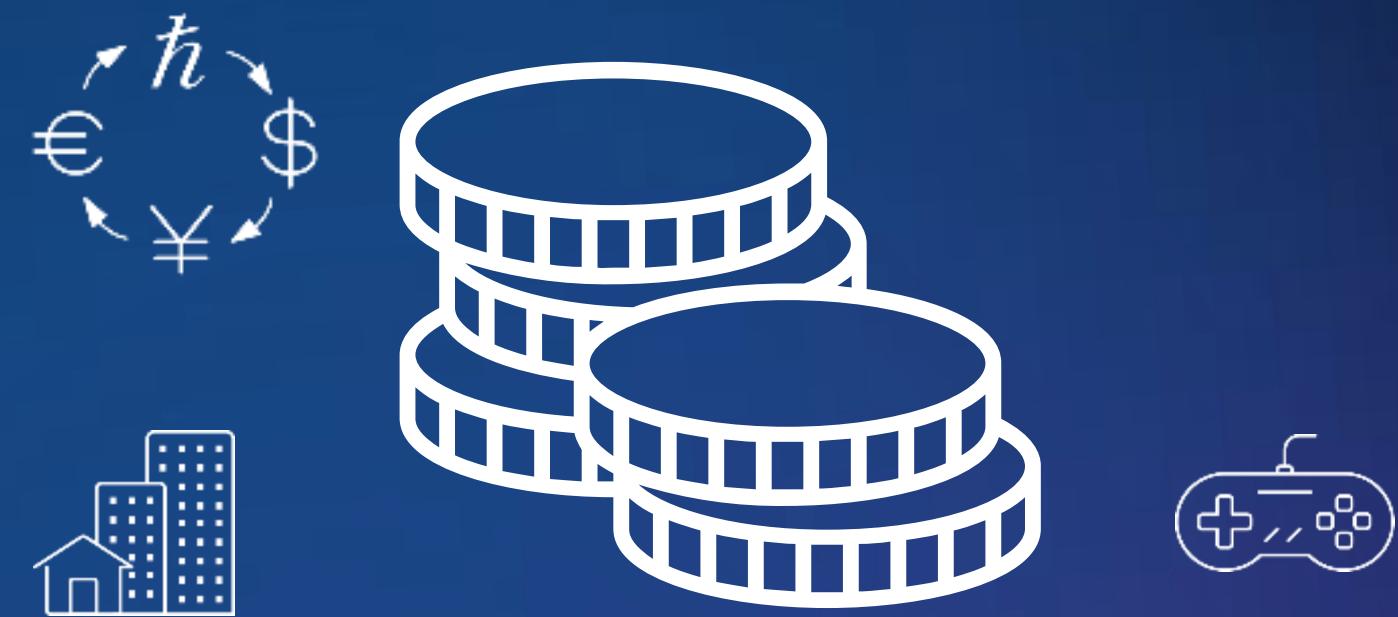
docs.hedera.com/docs/mainnet

Configure accounts and client

```
// Configure accounts and client in your main function
const operatorId = AccountId.fromString(process.env.OPERATOR_ID);
const operatorKey = PrivateKey.fromString(process.env.OPERATOR_PKEY);

const client = Client.forTestnet().setOperator(operatorId, operatorKey);
```





Token Service

“There are a number of challenges in using traditional ordering services for decentralized applications. By exposing this capability, Hedera is making a meaningful contribution to furthering the capabilities of distributed networks.”

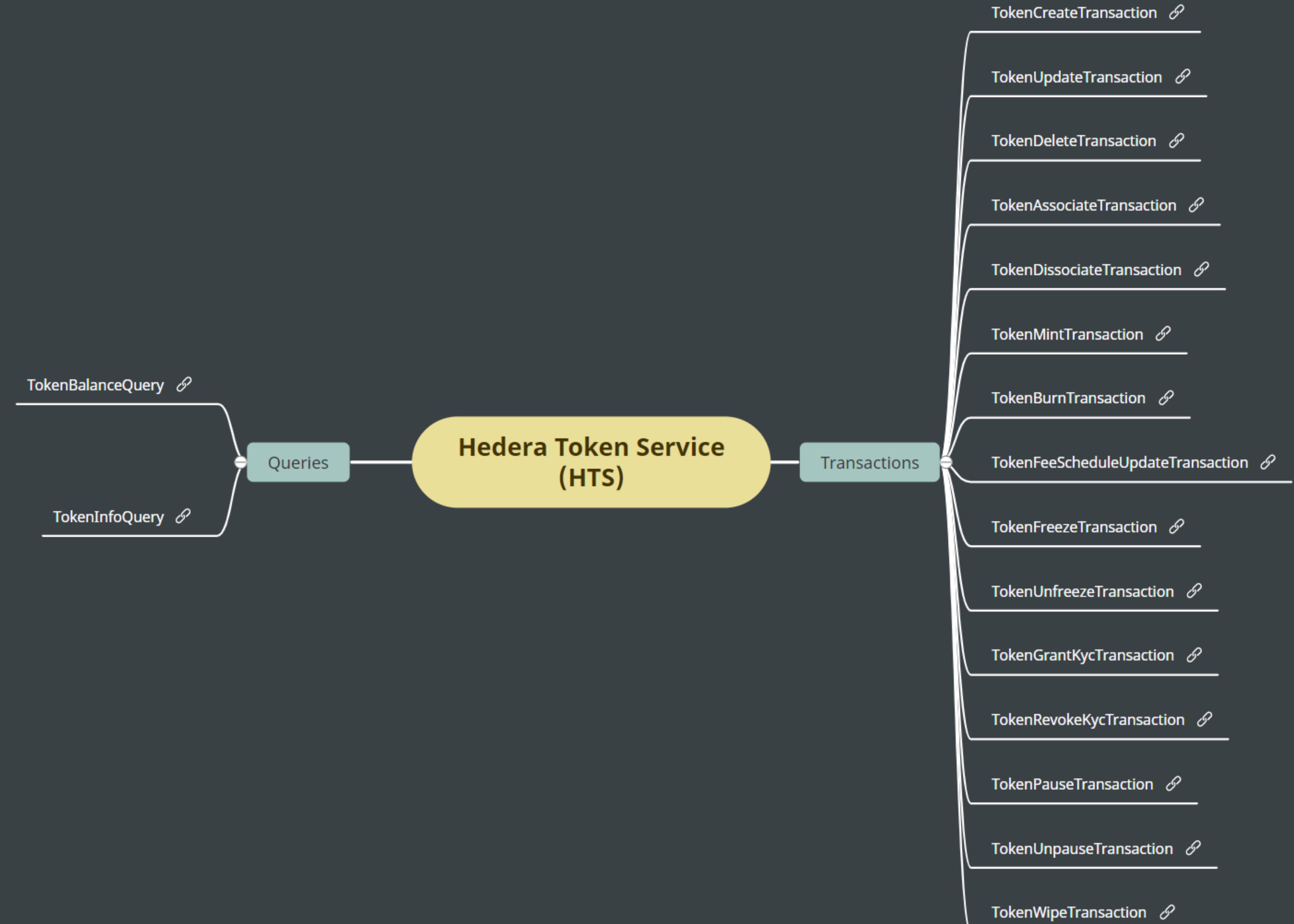
Bryan Gross | Product Manager | IBM Blockchain

Tokenization made simple

Mint and manage fungible and non-fungible tokens without needing to deploy a smart contract

Tokenize natively

High-throughput, compliance configurations, and on-chain programmability



TokenCreateTransaction() | Simple Non-fungible Token (NFT)

```
const { Client, TokenCreateTransaction, TokenType, TokenSupplyType } = require("@hashgraph/sdk");
client = Client.forTestnet().setOperator(operatorId, operatorKey);

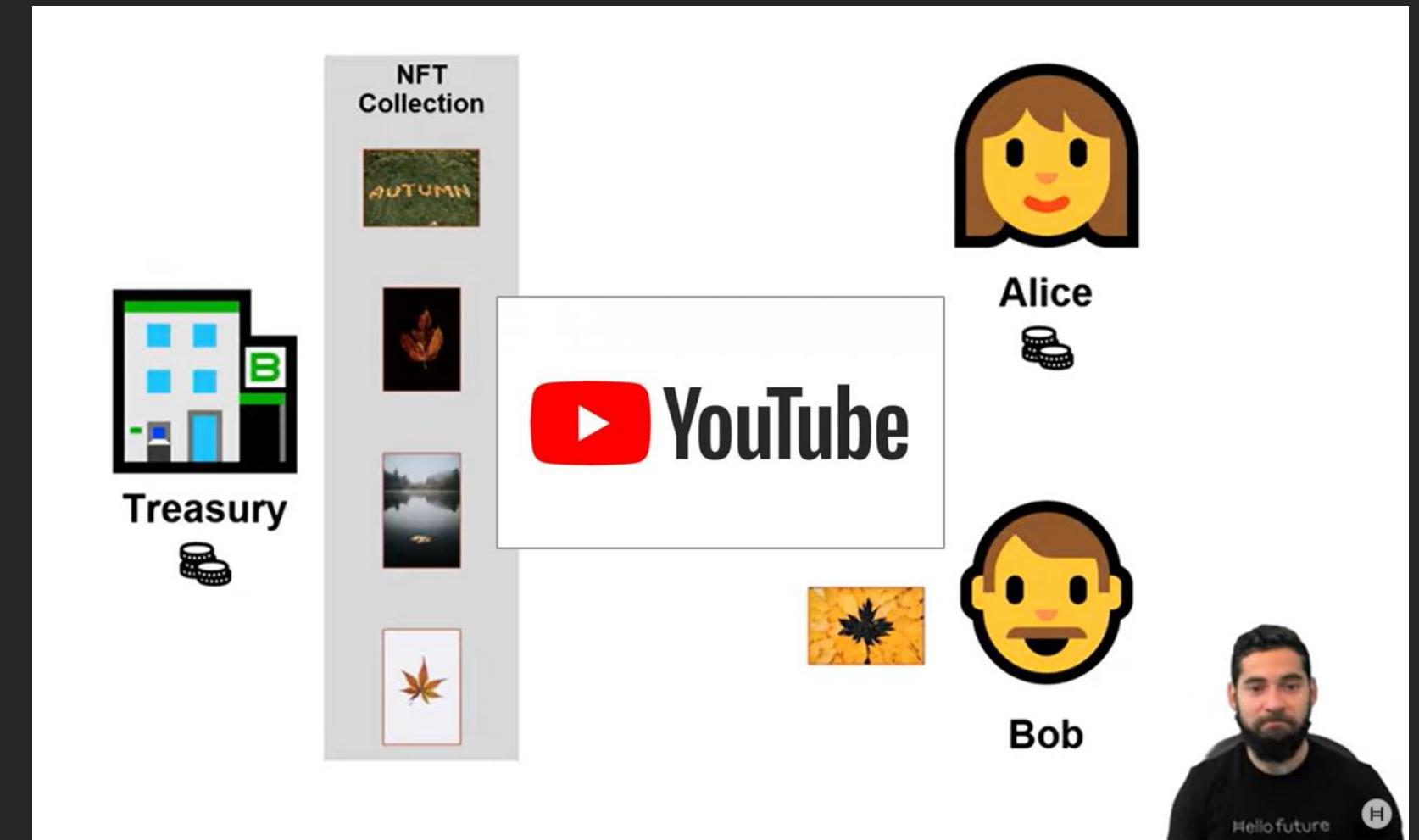
async function main() {

  const nftCreate = await new TokenCreateTransaction()
    .setTokenName("Fall Collection")
    .setTokenSymbol("LEAF")
    .setTokenType(TokenType.NonFungibleUnique)
    .setInitialSupply(0)
    .setTreasuryAccountId(treasuryId)
    .setMaxSupply(10)
    .setSupplyKey(supplyKey)
    .freezeWith(client);

  const nftCreateTxSign = await nftCreate.sign(treasuryKey);
  const nftCreateSubmit = await nftCreateTxSign.execute(client);
  const nftCreateRx = await nftCreateSubmit.getReceipt(client);
  const tokenId = nftCreateRx tokenId;
  console.log(`Created NFT with Token ID: ${tokenId}\n`);

}

main();
```



TokenCreateTransaction() | Customized Non-fungible Token (NFT)

```
const { Client, TokenCreateTransaction, TokenType, TokenSupplyType } = require("@hashgraph/sdk");
client = Client.forTestnet().setOperator(operatorId, operatorKey);

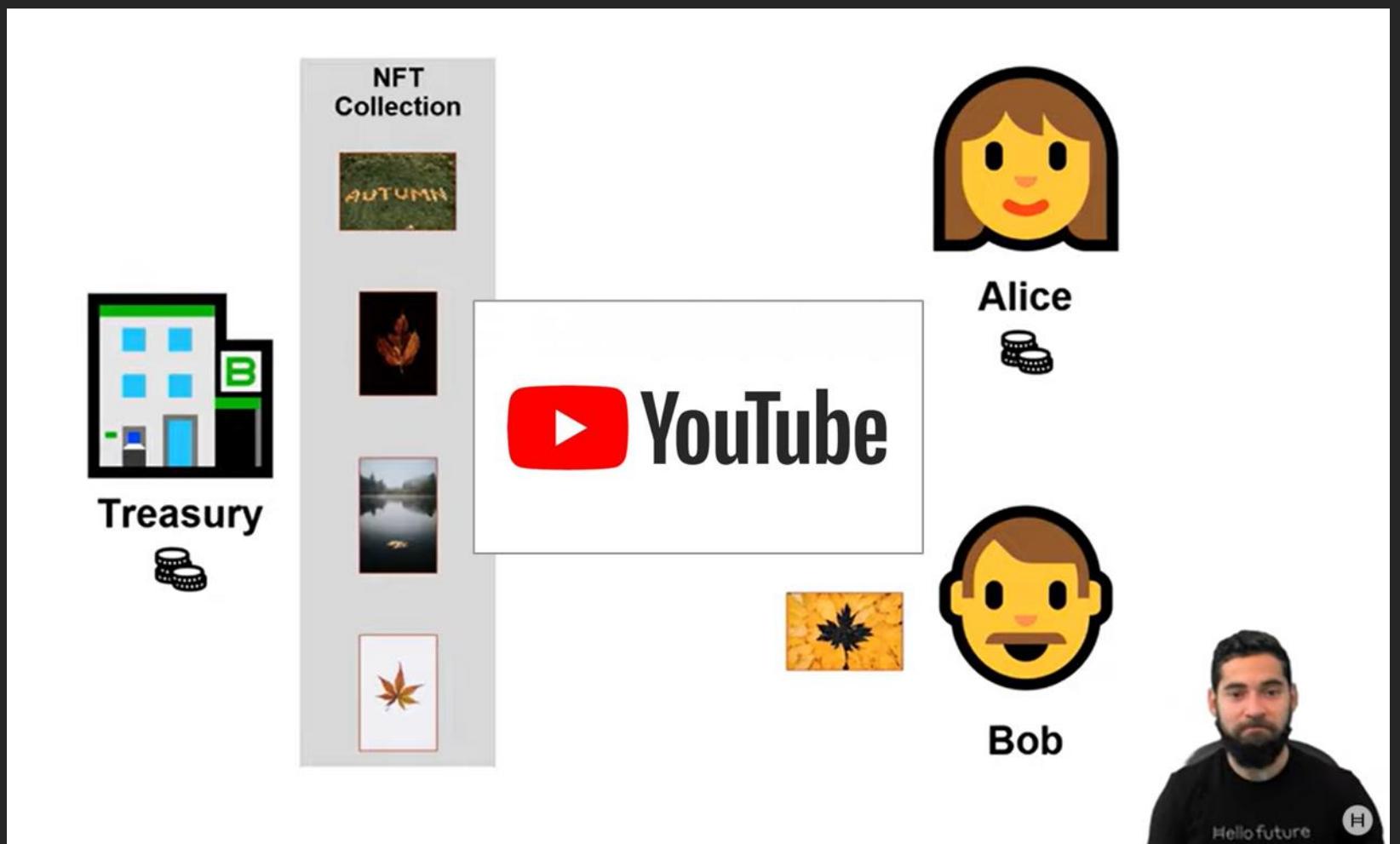
async function main() {

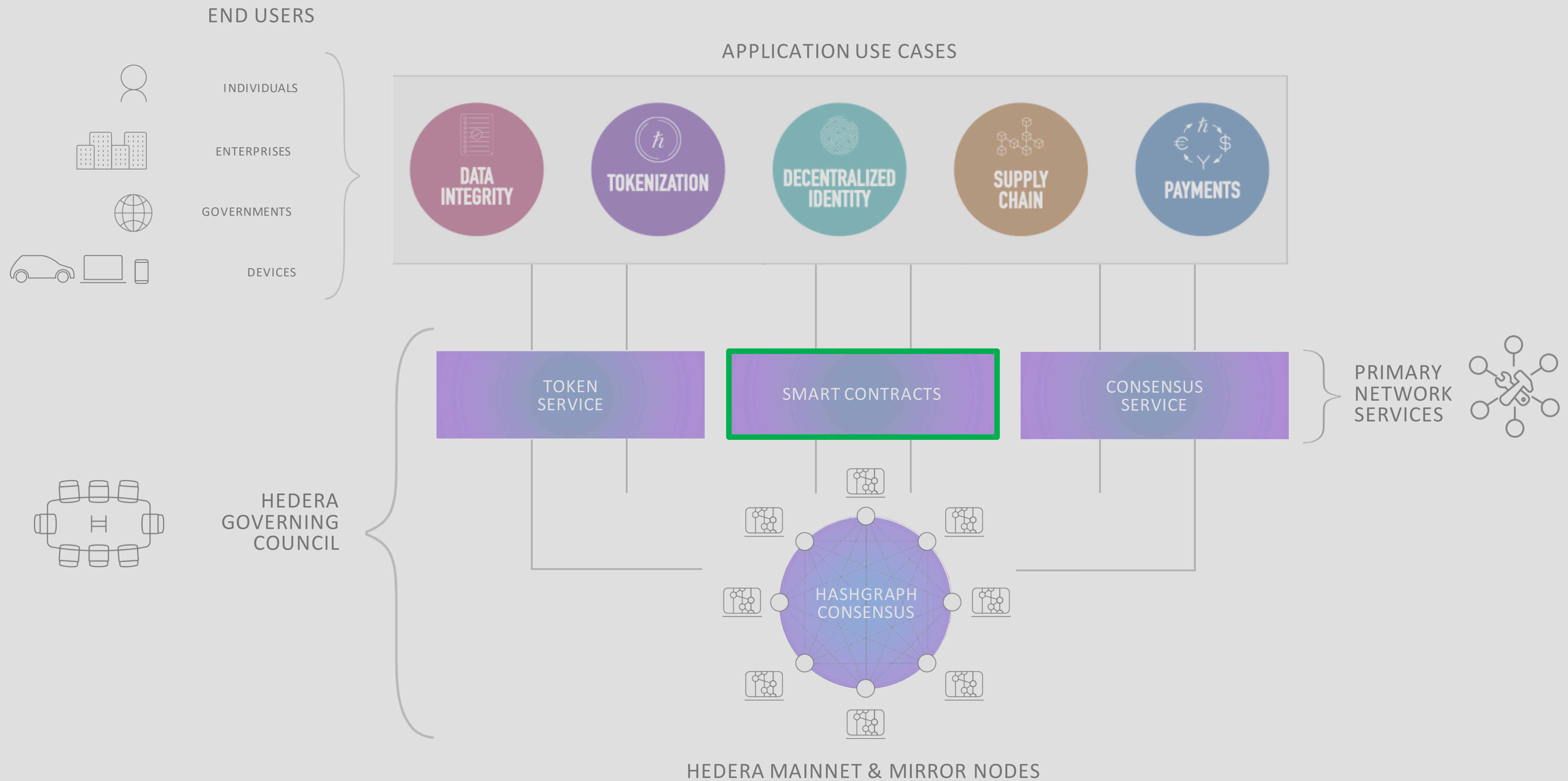
  const nftCreate = await new TokenCreateTransaction()
    .setTokenName("Fall Collection")
    .setTokenSymbol("LEAF")
    .setTokenType(TokenType.NonFungibleUnique)
    .setDecimals(0)
    .setInitialSupply(0)
    .setTreasuryAccountId(treasuryId)
    .setSupplyType(TokenSupplyType.Finite)
    .setMaxSupply(CID.length)
    .setCustomFees([nftCustomFee])
    .setAdminKey(adminKey)
    .setSupplyKey(supplyKey)
    .setPauseKey(pauseKey)
    .setFreezeKey(freezeKey)
    .setWipeKey(wipeKey)
    .freezeWith(client)
    .sign(treasuryKey);

  const nftCreateTxSign = await nftCreate.sign(adminKey);
  const nftCreateSubmit = await nftCreateTxSign.execute(client);
  const nftCreateRx = await nftCreateSubmit.getReceipt(client);
  const tokenId = nftCreateRx.tokenId;
  console.log(`Created NFT with Token ID: ${tokenId} \n`);

}

main();
```







Hedera Smart Contracts

“the one we’ve already built a use case for

[for our clients] is around tokenization of assets. The origin of that comes from speaking with our commercial real estate clients who have large, commercial real estate assets that are difficult to deal with”

Scott Thiel | Partner & Hedera Governing Council Member | DLA Piper

Build Using Solidity

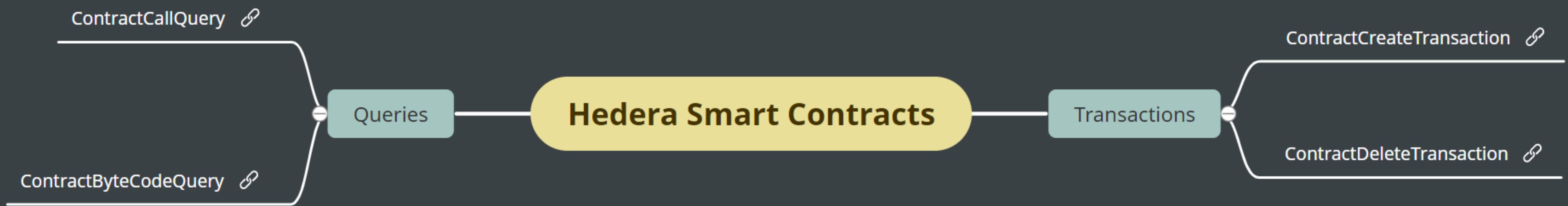
Run smart contracts written in Solidity, unchanged and using existing standards.

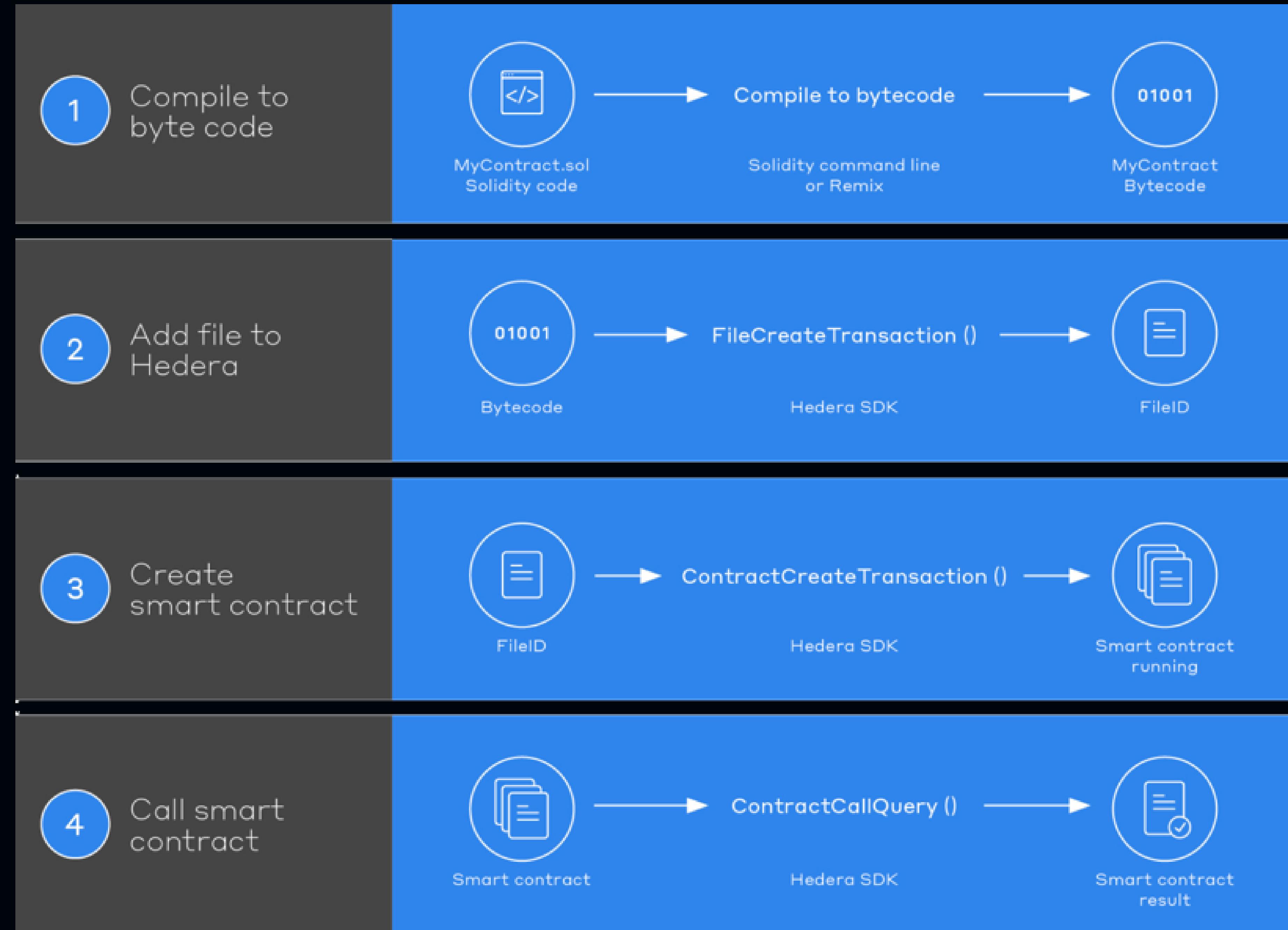
Fair Transaction Ordering

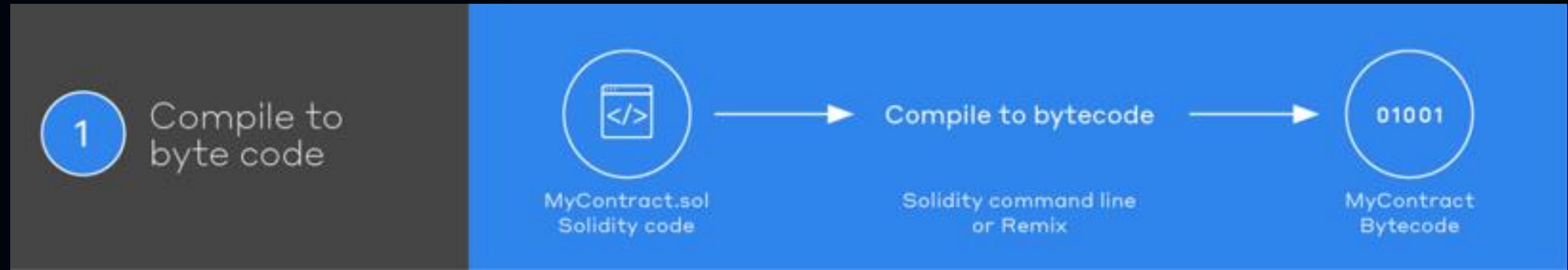
Like all services, smart contracts are executed in order received, never the amount of gas paid. No need to pay extra to be included earlier in history.

Admin privileges

Transparently define administrative keys to a contract, allowing owners to make sometimes drastically needed alterations to an otherwise immutable contract... Or not, it's up to your implementation!







LookupContract.sol

```
// SPDX-License-Identifier: GPL-3.0
pragma solidity >=0.7.0 <0.9.0;

contract LookupContract{
    mapping (string => uint) public myDirectory;

    constructor (string memory _name, uint _mobileNumber) public {
        myDirectory[_name] = _mobileNumber;
    }

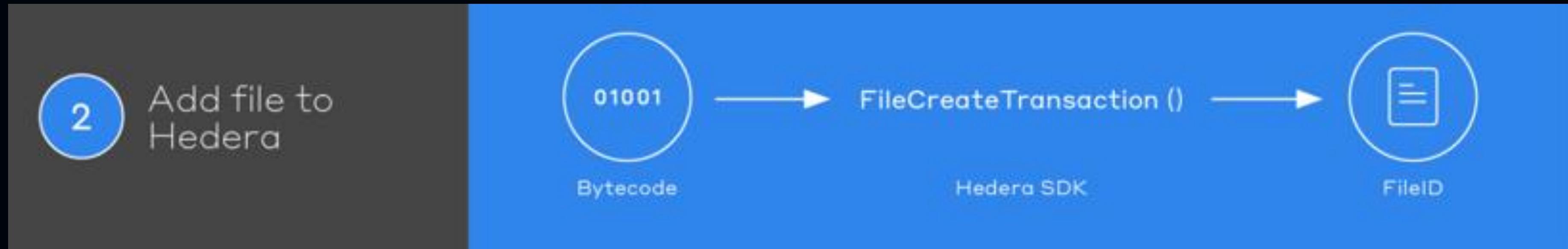
    function setMobileNumber(string memory _name, uint _mobileNumber) public{
        myDirectory[_name] = _mobileNumber;
    }

    function getMobileNumber(string memory _name) public view returns(uint){
        return myDirectory[_name];
    }
}
```

JavaScript SDK

```
// Import the compiled contract bytecode
const contractBytecode = fs.readFileSync("LookupContract_sol_LookupContract.bin");
```





JavaScript SDK

```
// Create a file on Hedera and store the bytecode
const fileCreateTx = new FileCreateTransaction()
  .setContents(contractBytecode)
  .setKeys([operatorKey])
  .freezeWith(client);

const fileCreateSign = await fileCreateTx.sign(operatorKey);
const fileCreateSubmit = await fileCreateSign.execute(client);
const fileCreateRx = await fileCreateSubmit.getReceipt(client);
const bytecodeFileId = fileCreateRx.fileId;
console.log(`- The bytecode file ID is: ${bytecodeFileId} \n`);
```



JavaScript SDK

```
// Instantiate the smart contract
const contractInstantiateTx = new ContractCreateTransaction()
  .setBytecodeFileId(bytecode fileId)
  .setGas(100000)
  .setConstructorParameters(new ContractFunctionParameters().addString("Alice").addUInt256(111111));
const contractInstantiateSubmit = await contractInstantiateTx.execute(client);
const contractInstantiateRx = await contractInstantiateSubmit.getReceipt(client);
const contractId = contractInstantiateRx.contractId;
const contractAddress = contractId.toSolidityAddress();
console.log(`- The smart contract ID is: ${contractId} \n`);
console.log(`- The smart contract ID in Solidity format is: ${contractAddress} \n`);
```



JavaScript SDK

```
// Query the contract to check changes in state variable
const contractQueryTx = new ContractCallQuery()
  .setContractId(contractId)
  .setGas(100000)
  .setFunction("getMobileNumber", new ContractFunctionParameters().addString("Alice"));
const contractQuerySubmit = await contractQueryTx.execute(client);
const contractQueryResult = contractQuerySubmit.getUint256(0);
console.log(`- Here's the phone number that you asked for: ${contractQueryResult}\n`);
```



```
// Call contract function to update the state variable
const contractExecuteTx = new ContractExecuteTransaction()
  .setContractId(contractId)
  .setGas(100000)
  .setFunction("setMobileNumber", new ContractFunctionParameters().addString("Bob").addUint256(222222));
const contractExecuteSubmit = await contractExecuteTx.execute(client);
const contractExecuteRx = await contractExecuteSubmit.getReceipt(client);
console.log(`- Contract function call status: ${contractExecuteRx.status}\n`);

// Query the contract to check changes in state variable
const contractQueryTx1 = new ContractCallQuery()
  .setContractId(contractId)
  .setGas(100000)
  .setFunction("getMobileNumber", new ContractFunctionParameters().addString("Bob"));
const contractQuerySubmit1 = await contractQueryTx1.execute(client);
const contractQueryResult1 = contractQuerySubmit1.getUint256(0);
console.log(`- Here's the phone number that you asked for: ${contractQueryResult1}\n`);
```

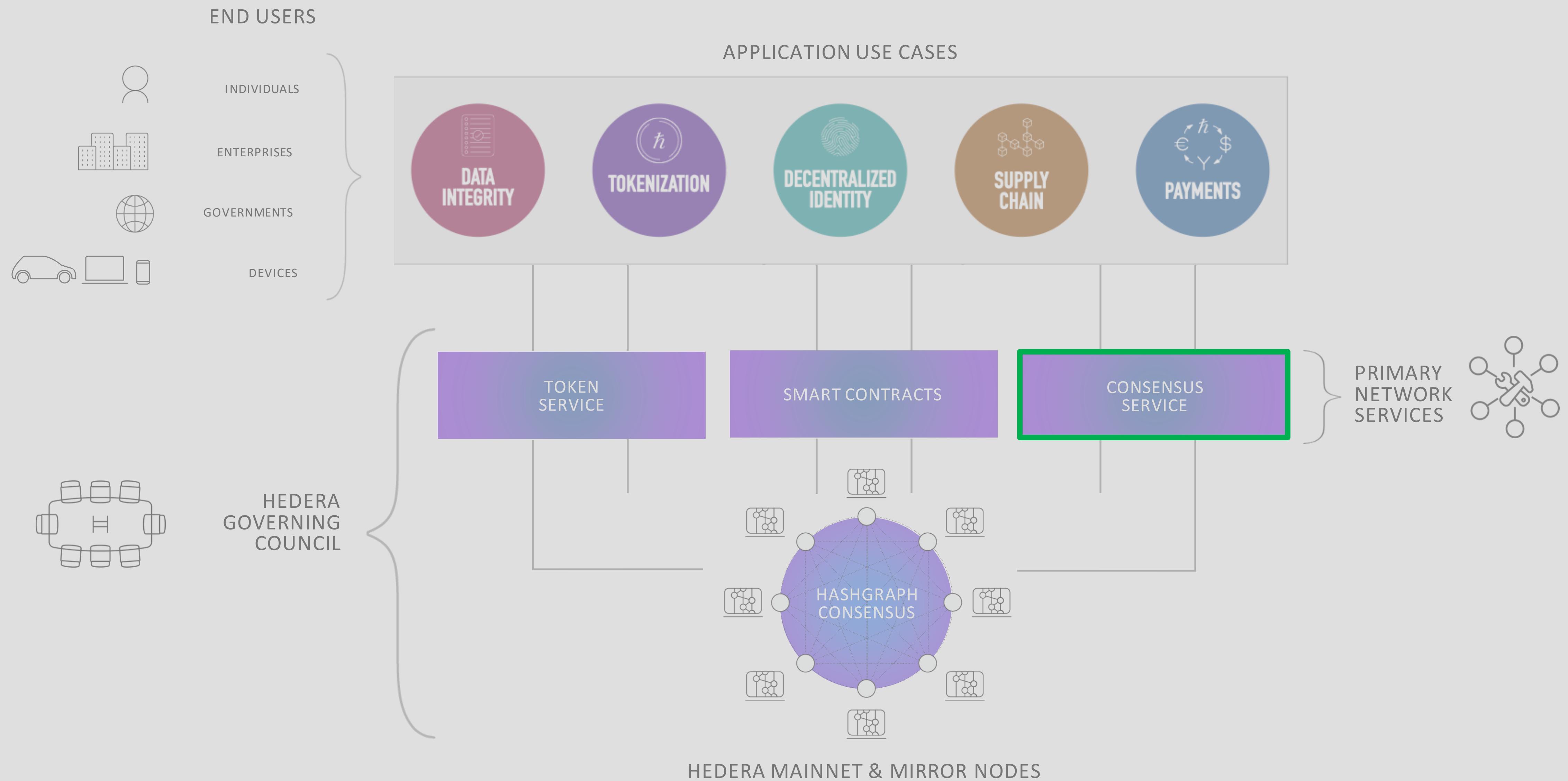
Console Output

- The bytecode file ID is: 0.0.30468526

 - The smart contract ID is: 0.0.30468614

 - The smart contract ID in Solidity format is: 000000000000000000000000000000001d0ea06

 - Here's the phone number that you asked for: 111111
 - Contract function call status: SUCCESS
 - Here's the phone number that you asked for: 222222





Consensus Service

“There are a number of challenges in using traditional ordering services for decentralized applications. By exposing this capability, Hedera is making a meaningful contribution to furthering the capabilities of distributed networks.”

Bryan Gross | Principal Product Manager | IBM Blockchain

64

Build with native performance

Create applications that demand high throughput 10,000+ txs per second, per shard

Amplify trust

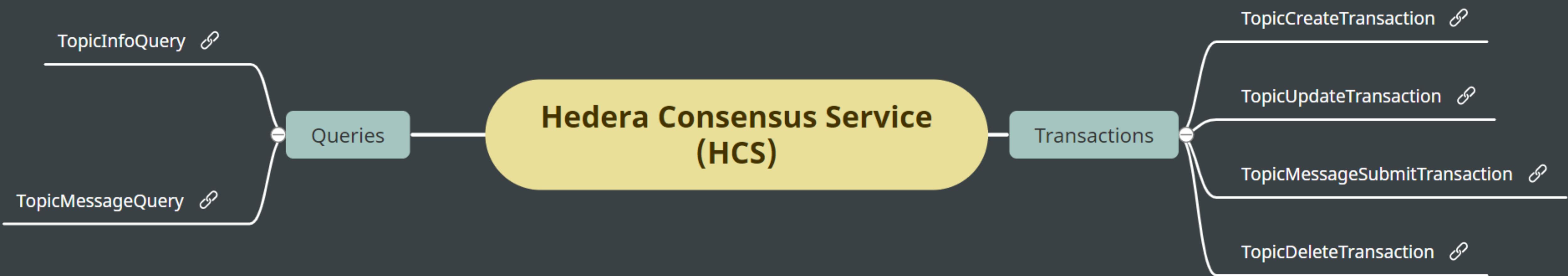
Validate the data in a multi-party database, notary service, or anything that needs transparency with shared infrastructure

Guarantee order

Results in a fair total consensus order, with accurate timestamps, a running hash of order in the topic, along with a state proof that guarantees it is correct

Integrate into existing ecosystems

Open-source integrations with Hyperledger Fabric create new architectures



TopicCreateTransaction()

```
const { Client, TopicCreateTransaction } = require("@hashgraph/sdk");
client = Client.forTestnet().setOperator(operatorId, operatorKey);

async function main() {

  tx = await new TopicCreateTransaction().execute(client);
  receipt = await tx.getReceipt(client);
  newTopicId = receipt.topicId;

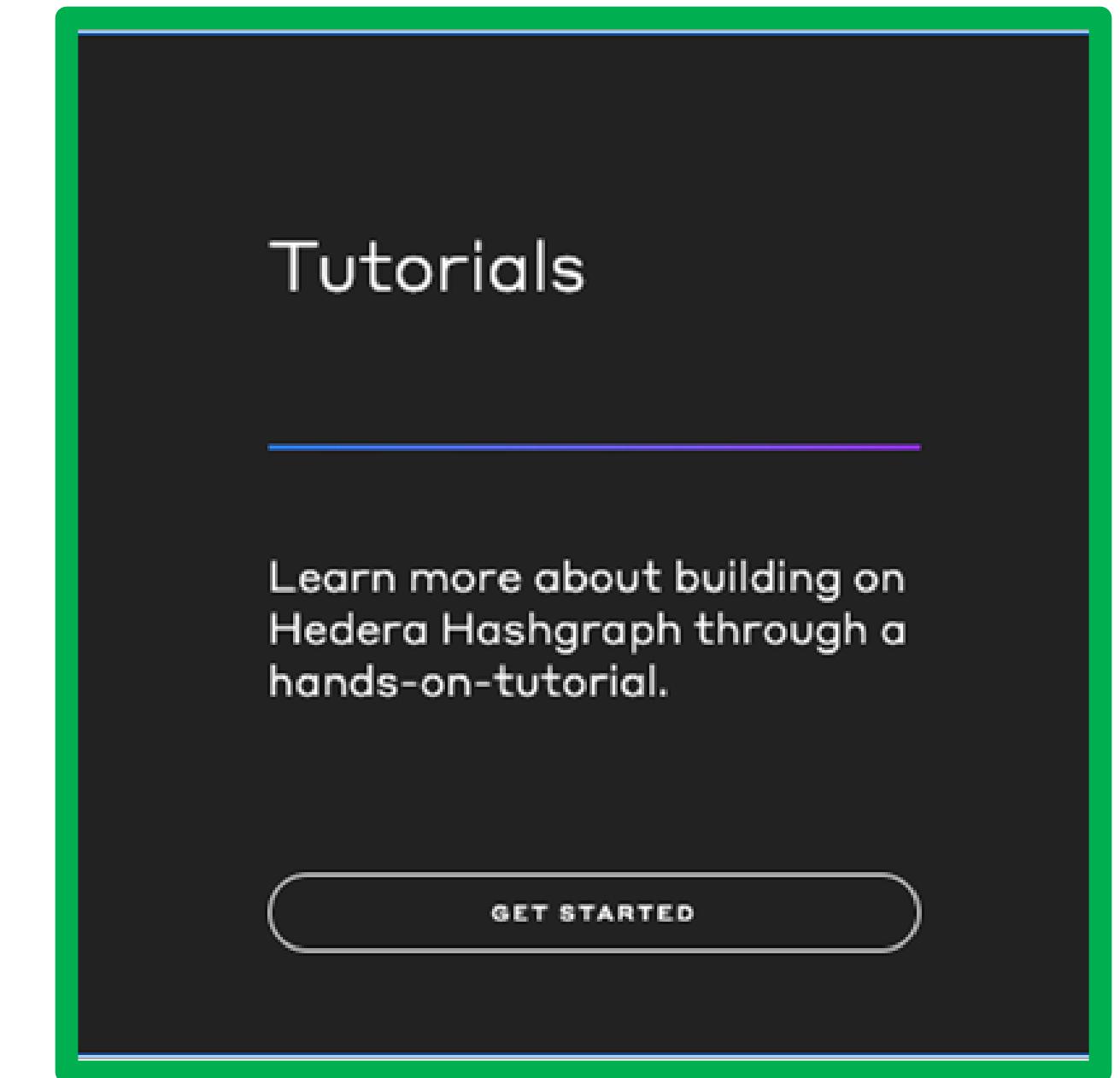
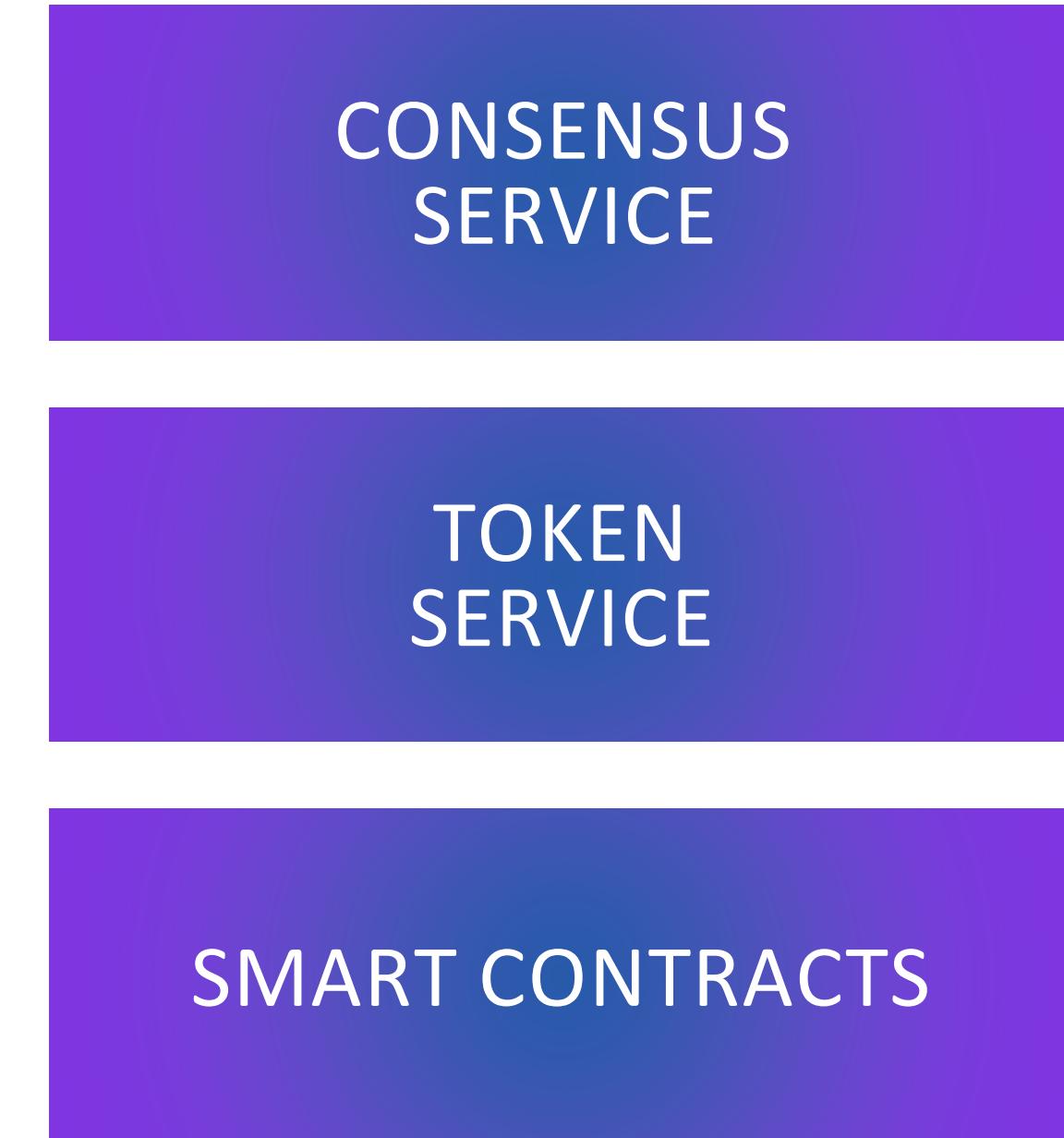
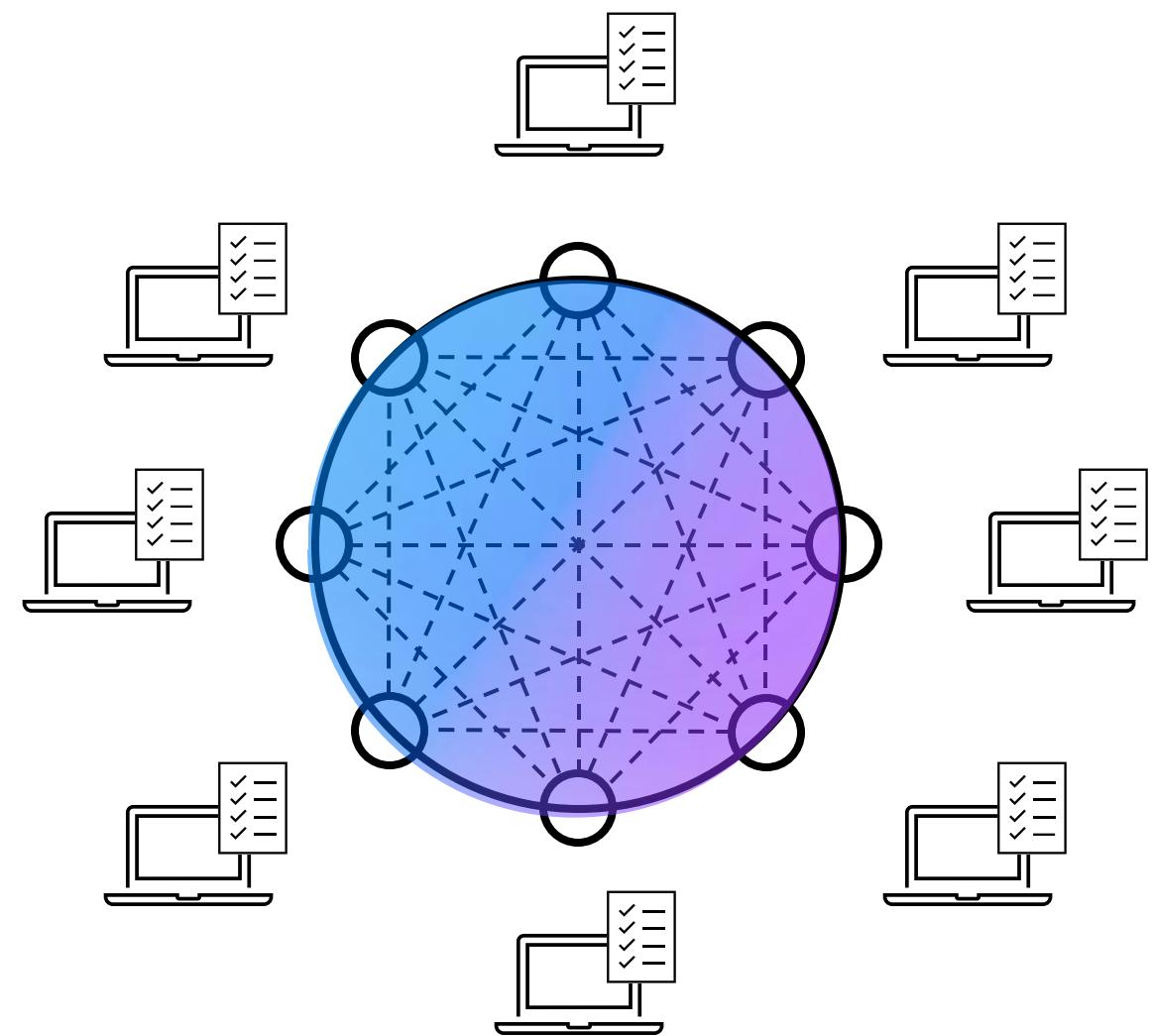
  console.log(`New HCS topic ID: ${newTopicId}`);
}

void main();
```

TopicMessageQuery()

```
new TopicMessageQuery()  
  .setTopicId(topicId)  
  .subscribe(  
    client,  
    (error) => console.log(`Error: ${error}`),  
    (message) => console.log(message.toString()))  
);
```

In this session, you will learn how the **Hedera network functions**, how you can **start development**, and **where to learn more**



Introduction

Understand
the Hedera Network

Start Developing on
Hedera

Get Resources and
Learn More



Considering use cases

What makes a good decentralized use case?

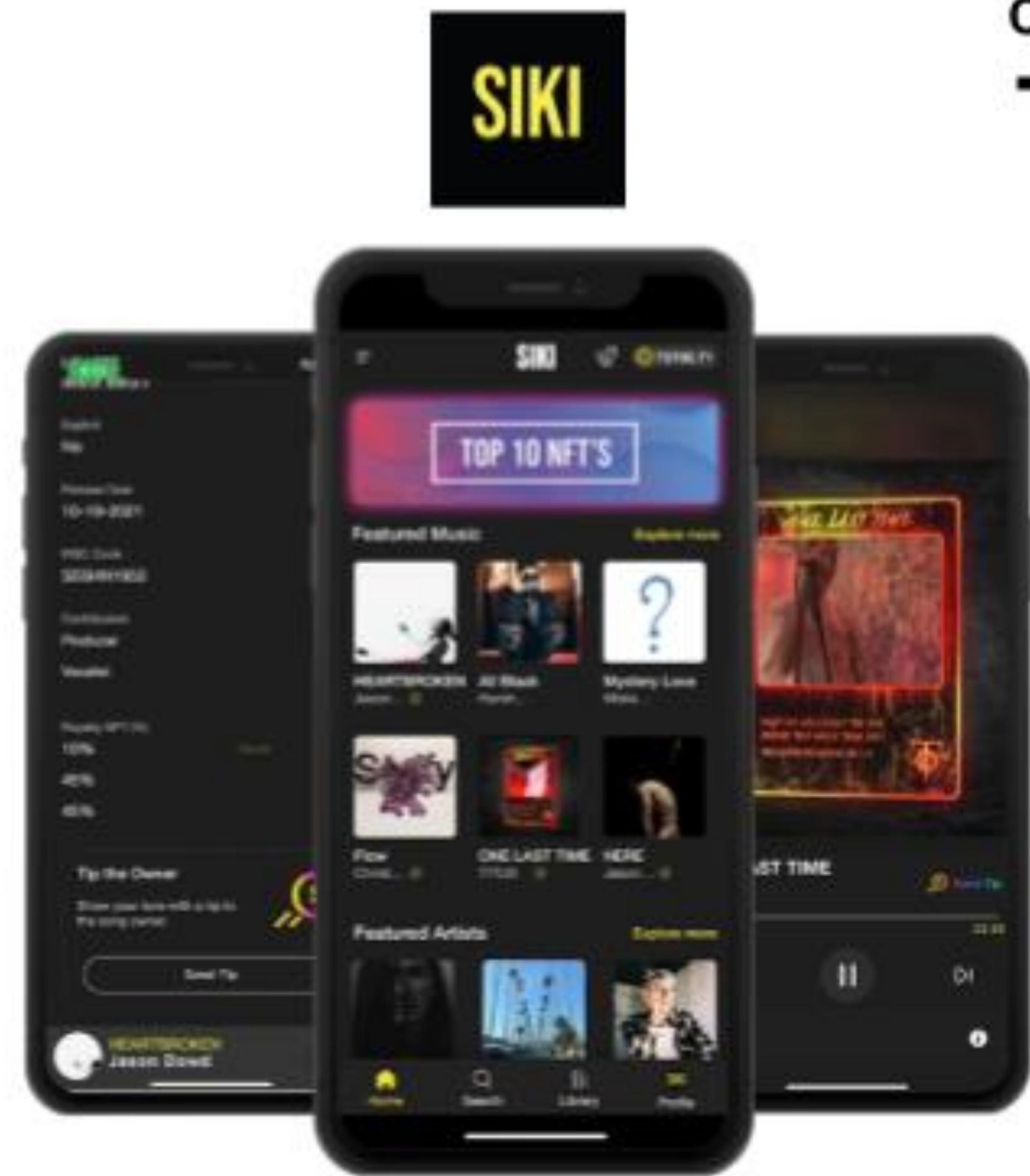
- Transparent collaboration
- Auditability and attestability
- Censorship resistance
- Composability & compounding
- Inherent lack of trust between parties

Collectibles & NFTs

Limited crypto collectibles are designed to extend the connection between brands and their supporters.

NFTs can be linked to unlockable content and special fan experiences, as well as leverage lifetime price and revenue shares

Potential for greater utility through connection to external applications



SIKI provides a social platform with gamification tools for music artists to deploy limited edition music tracks and albums as NFT collectibles, enabling the digital equivalent of the collectible vinyl with added community engagement tools

Asset Tokenization

TOKO is an enterprise-grade tokenization platform that complements DLA Piper's core legal services and helps clients navigate the complexity of regulated securities.

It combines the firm's compliance and regulatory rigor with the innovative technology solutions of tomorrow.

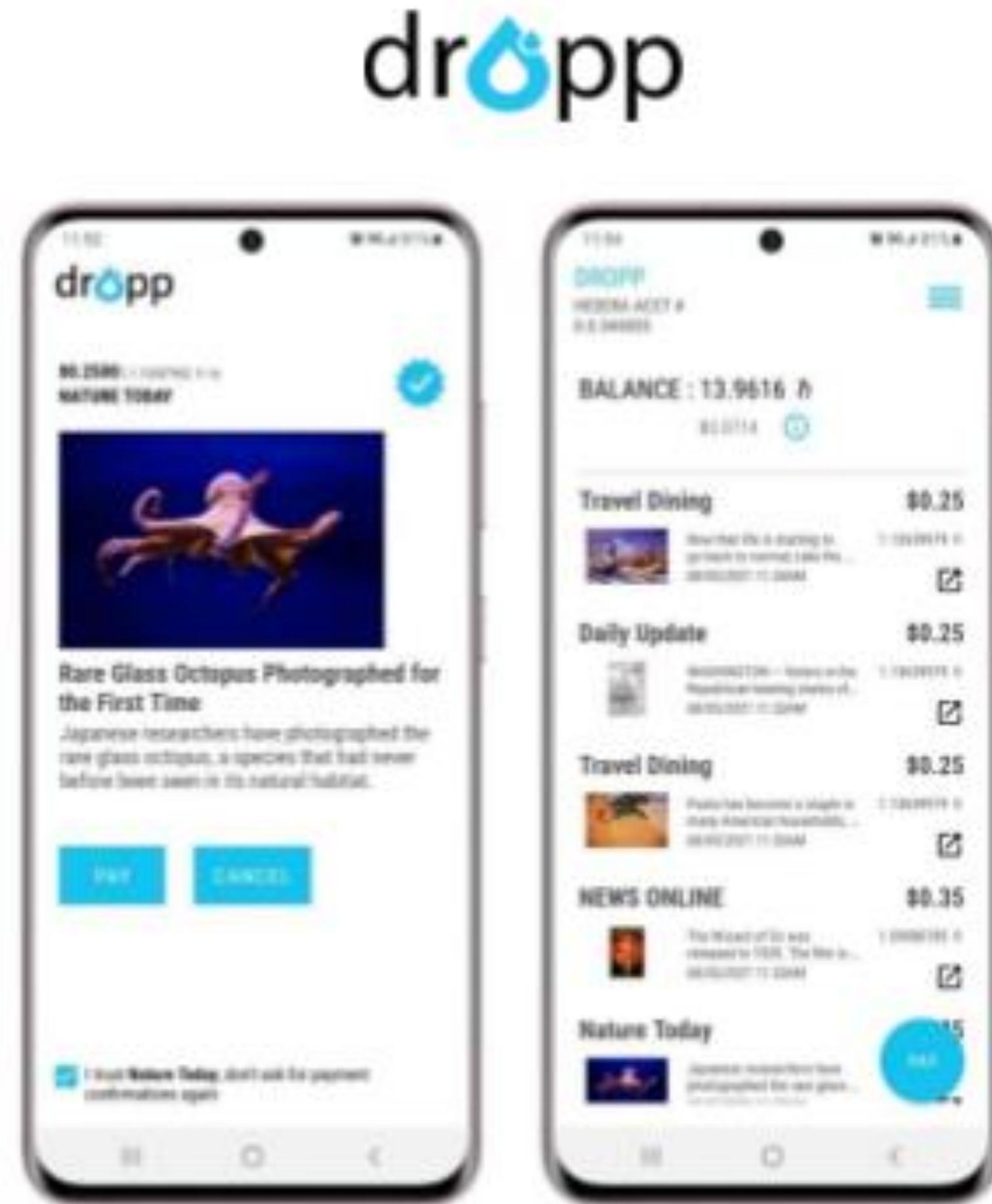


TOKO's digital asset creation engine solves the inefficiencies of today's capital markets by using the best of distributed ledger technology.

Micropayments

With the introduction of instantaneous digital content and services, old payment infrastructure and existing business models can't meet the needs of today's merchants.

Dropp chose Hedera Hashgraph for its high throughput, fast settlement times, and low, predictable fees. They enable merchants to adopt revenue models never-before-possible to save money and grow their business.



Dropp enables micropayments for small value transactions in both HBAR cryptocurrency and US Dollars. Merchants save money and grow their business, while consumers get convenient access to products and services to enrich their lives.

CBDCs

The financial market infrastructure in developing countries is cash heavy, inefficient, and exclusive. Worldwide, there are 1.7 billion adults who are unbanked, causing a problem in need of an immediate solution to prevent economic inequities.

The digitization of sovereign currencies on Hedera is unlocking significant efficiencies in governance, payments, compliance, and financial inclusion.

EMTECH



Emtech offers a regulatory sandbox to connect central banks to fintechs across various developing nations, as well as a CBDC solution that runs on private Ethereum and leverages HCS for ordering.

Customer Engagement

The Sayl platform integrates natively with many platforms to become a gateway for businesses' existing tech stacks to leverage tokens at scale.

Enterprises need the depth of Web2 infrastructure to transition to Web3. Sayl is leading the industry here.

In Web3, tokens change Customer Relationship Management (CRM) into Owner Relationship Management (ORM).

 **sayl conn3ct**



Loyalty Program

Loyalty Management Market Size Worth \$17.65 Billion By 2028 (Grand View Research, Inc.)

Tokenized loyalty points enable consumer and brand to facilitate exchange activity, user consumption, and customer on boarding

Create powerful long-term relationships through perks (rewards) and quests (discovery), leveraging branded tokens



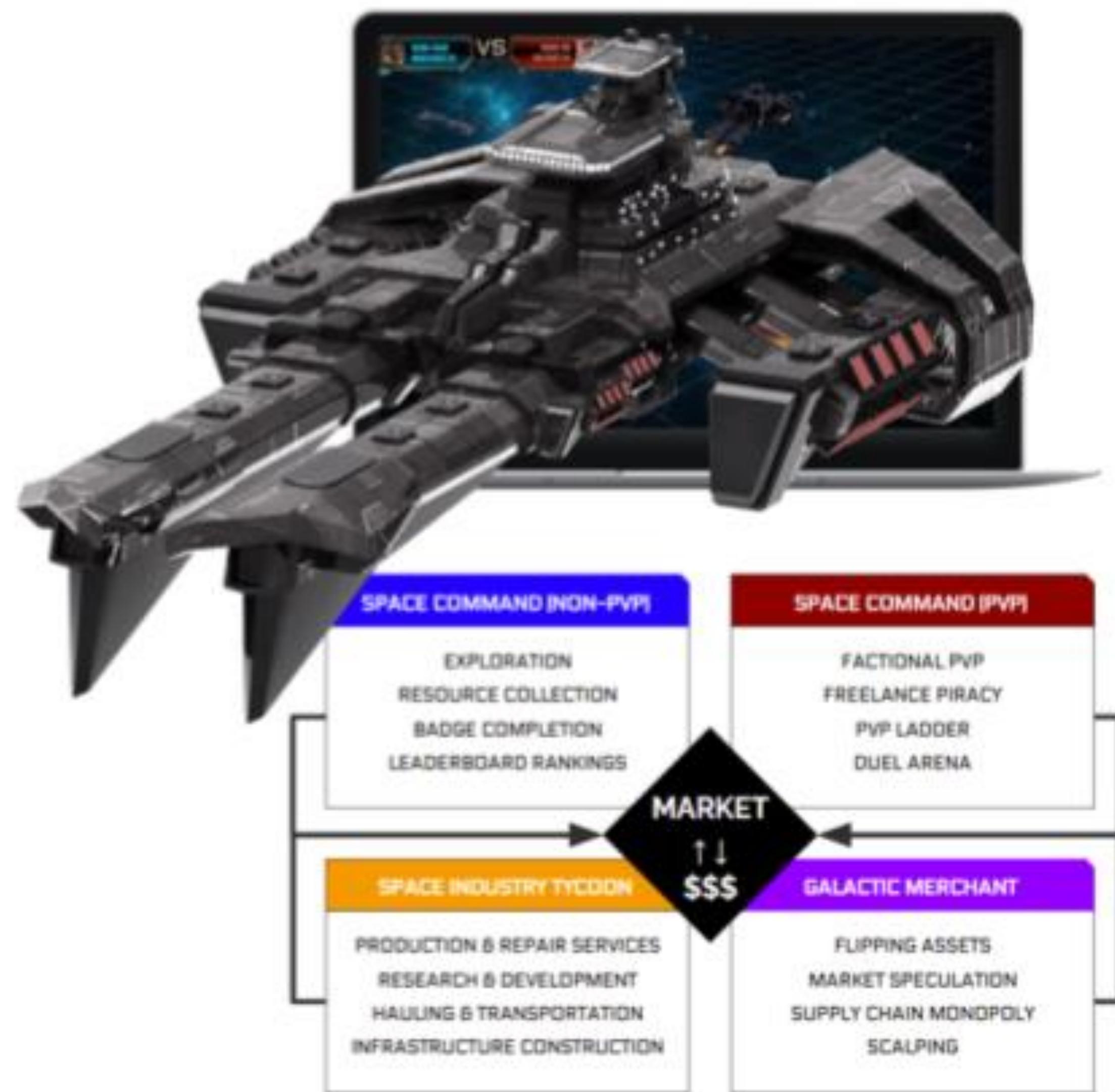
Galaxy enables creators to issue their own 'creator tokens' which fans buy to engage with them on the platform. They benefit from Hedera's low fees and high performance to support large fan bases.

Gaming

Vavel is an veteran-led game development studio with a proprietary tech stack launching a play-to-earn MMO multiverse to elevate the current DLT gaming experience.

Every MMO, starting with flagship 'Imperium Galactic War', has a complex economy with virtual resources and corporations. Vavel chose Hedera as most capable DLT for powering advanced ecosystems.

The 'Vavelverse' will launch additional genre MMOs, all connected by overlapping tokens and DAOs.

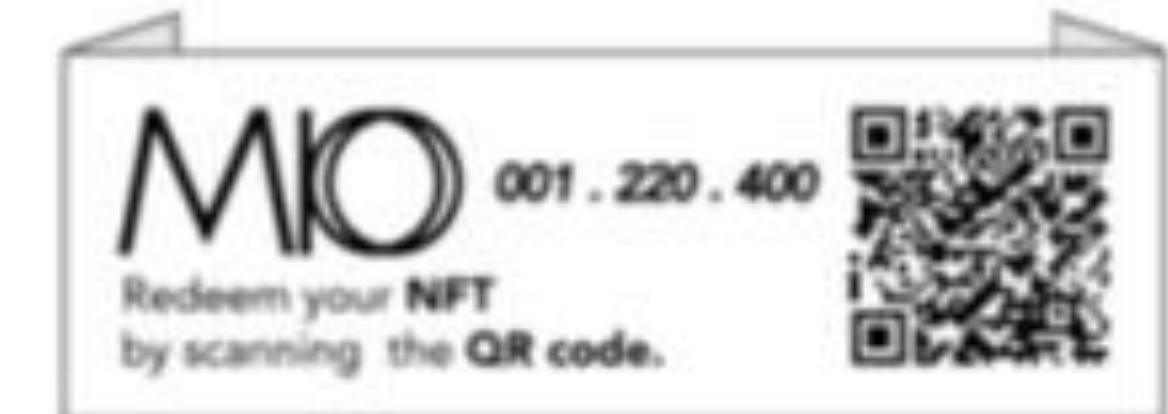


Luxury Fashion

MION SPA is a 50+ year old company producing 100s millions of labels every year for luxury brands, such as Moncler, Balenciaga, Off-White etc.

MIO is the DLT solution which uses woven labels to connect garments produced by luxury brands to an NFT.

These NFTs guarantee authenticity and origin and provide a creative identity which can be connected to the metaverse.



MIO enables consumers around the world to collect, exchange and sell the digital twins of their garments, and also take full advantage of special privileges granted to them as members of the brands' digital community. All using existing label infrastructure.

1000.000
labels per day

60 km
woven ribbons per day

230.000.000
labels per year

700
clients worldwide

Fan Engagement

Ticketing and events platforms are embracing tokenized payments, credentials, and collectibles to drive greater engagement for in person experiences with fans, teams, players and brands.

Once consumed virtual 'ticket stubs' can be retained as collectibles, providing owners value as memorabilia, linking them to iconic moments.



Lokkaroom builds a ticketing solution into a comprehensive fan engagement platform so that tickets can be consumed across stadiums and vendors while retaining value as collectibles and fan recognition



Develops and maintains the Universal Positive Offer File for manufacturer coupons using the Hedera Consensus Service.

"Only Hedera Hashgraph was able to provide the real-time, tamper-prooflogging capabilities that we needed to bring transparency, trust, agnosticism and industry oversight to a platform that connects all coupon industry stakeholders"

BRANDI JOHNSON | CEO

QUICK FACTS

CHALLENGE

Coupon and associated promotional data is fragmented, non-standardized, and rife with fraud. Without the necessary controls, transparency or trust, the industry usage of this promotional vehicle has decreased in recent years.

SOLUTION

The Coupon Bureau can bring its standardization and added efficiencies to the marketplace with transparency and trust. By allowing 3rd party validation and audit capabilities among authorized stakeholders, the industry will be able to have confidence in this centralized, agnostic solution.

MORE INFORMATION

[HEDERA.COM/USERS/COUPON-BUREAU](https://hedera.com/users/COUPON-BUREAU)

eftpos

Micropayments that aims to create a seamless Australian payment experience for web users by providing an alternative to traditional online paywalls and subscriptions.

“By working with Hedera, we are leveraging next generation payments infrastructure technology that can support Australian dollar-based micropayments and open up entirely new ways of conducting business online.”

ROBERT ALLEN | ENTREPRENEUR IN RESIDENCE

CHALLENGE

Eftpos needed to facilitate payments and micropayments using a digital dollar that enables fast, secure, and affordable micropayment transactions.

SOLUTION

Eftpos will test the capability of a digital Australian dollar stable coin, enabled by the hedera consensus service, allowing consumers to load a wallet with a few dollars and then pay for web-based content seamlessly.

ADVERTISING | DATA INTEGRITY



Real-time auditing at scale to eliminate advertising fraud and remove costly intermediaries.

"Hedera has proven it has the scale, speed and reliability to handle all of the live advert tracking data and programmatic event data that we have been handling in recent campaigns."

IAN MULLINS | FOUNDER & CEO

QUICK FACTS

CHALLENGE

The digital advertising industry is rife with fraud and trust issues, while over 75% of fees are placed into the pockets of expensive intermediaries.

SOLUTION

AdsDax is leveraging Hedera to build a platform that will track and verify advertising events and engagement, while providing security, resilience, scalability, and transparency, without the need for costly intermediaries.

MORE INFORMATION

[HEDERA.COM/USERS/ADSDAX](https://hedera.com/users/adsdax)

EVERYWARE

Digitally track and monitor critical or high-value assets.

“For managing highly critical information, like the COVID-19 vaccine’s temperature, Hedera Hashgraph provides us immutable trust at the speed required for our IoT devices.”

TOM SCREEN | TECHNICAL DIRECTOR

QUICK FACTS

CHALLENGE

Monitoring the temperature of key assets, like the COVID-19 vaccine is of interest to multiple parties, with liability and risk to be had. Everyware wanted a more secure method to manage this device data than a traditional database.

SOLUTION

Everyware uses Hedera Consensus Service to keep an immutable, tamper-proof, and verifiable record of sensor data.

MORE INFORMATION

[HEDERA.COM/USERS/EVERYWARE](https://hedera.com/users/everyware)



power transition

Peer-to-peer energy microgrids built on a stable network with high-throughput, to exchange value.

“The Hedera Token Service has transformed the way our customers can trade electricity and other forms of value across the energy sector.”

JIRO OLCOTT | DIRECTOR

QUICK FACTS

CHALLENGE

Peer-to-peer energy trading and microgrid management is becoming a reality with the increased adoption of solar panels and batteries. Power Transition needed a way to enable economically feasible micropayments between disparate parties who require trust.

SOLUTION

Hedera was chosen for its network stability, high-throughput, low latency, and predictable fees to power HBAR cryptocurrency micropayments between homes on the Power Transition microgrid.

MORE INFORMATION

[HEDERA.COM/USERS/POWER-TRANSITION](https://hedera.com/users/power-transition)

Learn more and start building web 3!

hedera.com/get-started

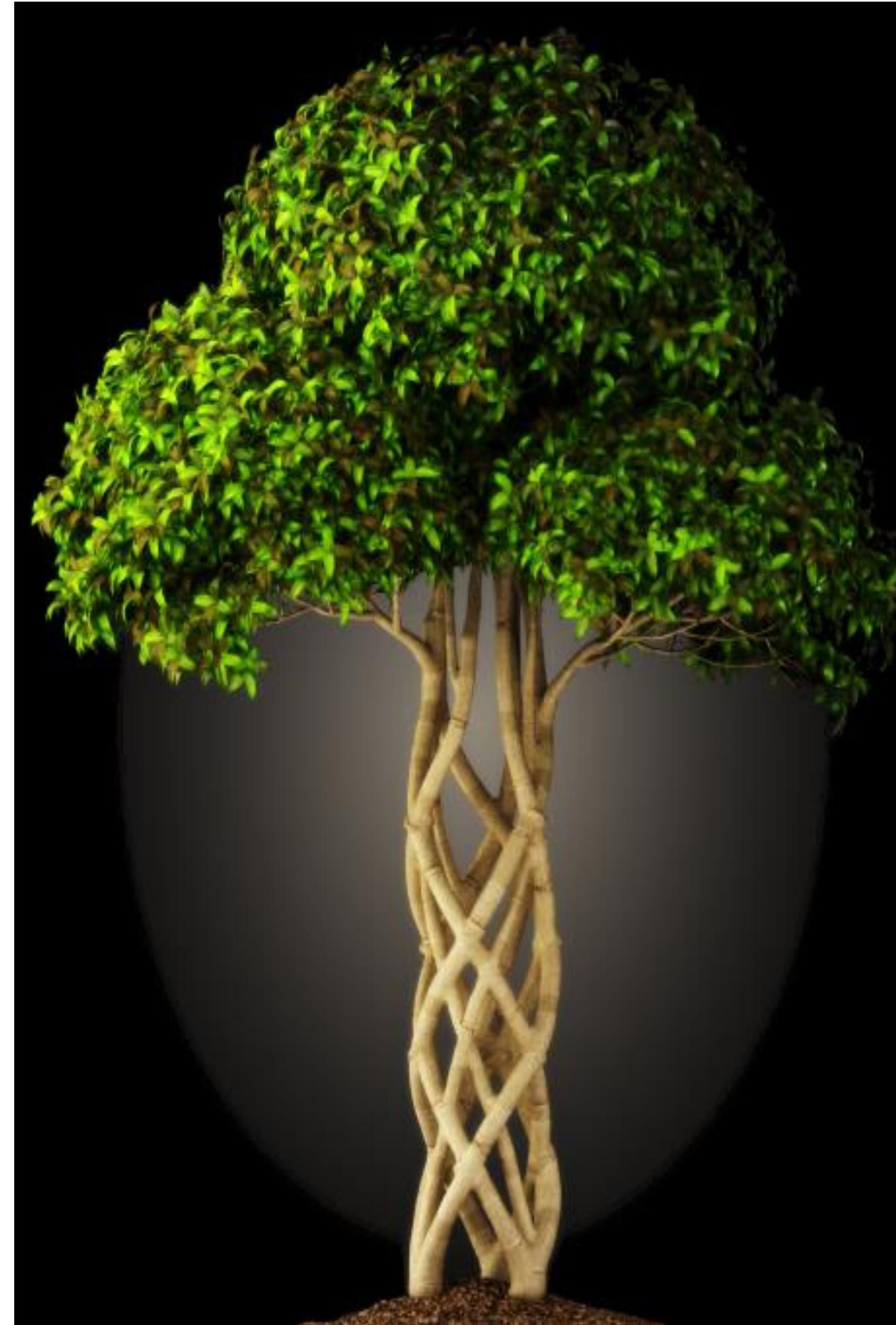
[Hedera Learning Center](#)

[Join Developer Discord](#)

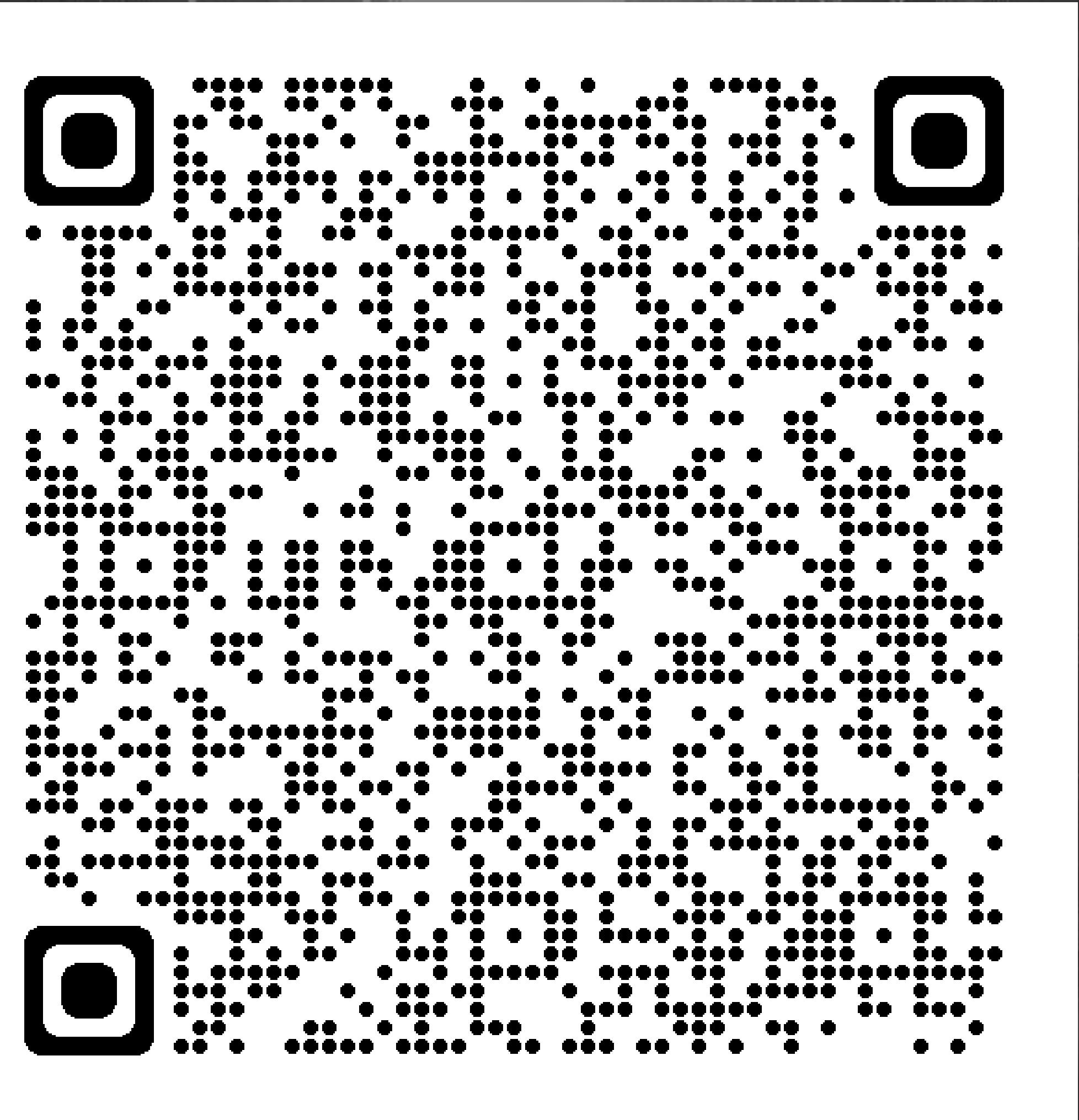
[Hedera YouTube Channel](#)

[Application Demos](#)

Web 3 is ready for you, and with Hedera, you are ready for Web 3!



GET THE SLIDES NOW ➔



Ed Marquez – Hedera

Viv Diwakar – The HBAR Foundation



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