TEA PROJECT

TRUSTED EXECUTION & ATTESTATION

Elevating Decentralized Trusted Computing to a **T**

teaproject.org

brings the decentralized cloud to Web3

The TEA Project offers a decentralized compute layer that goes beyond smart contracts.

Blockchains like Ethereum run mostly hybrid dApps that still use centralized hosting. Ethereum dApps are smart contract based, whereas TEA allows for **general purpose computing**.

IPFS offers decentralized storage but is lacking a decentralized **compute layer** to go with it.

Projects like Helium decentralize data transmission but are missing a **compute layer** to directly run dApps on network data.

Developers write their dApps **once** and gain access to **multiple** layer-1 blockchains.

Apps run on top of TEA platform's middle compute layer, which can run on top of multiple layer-1 blockchains
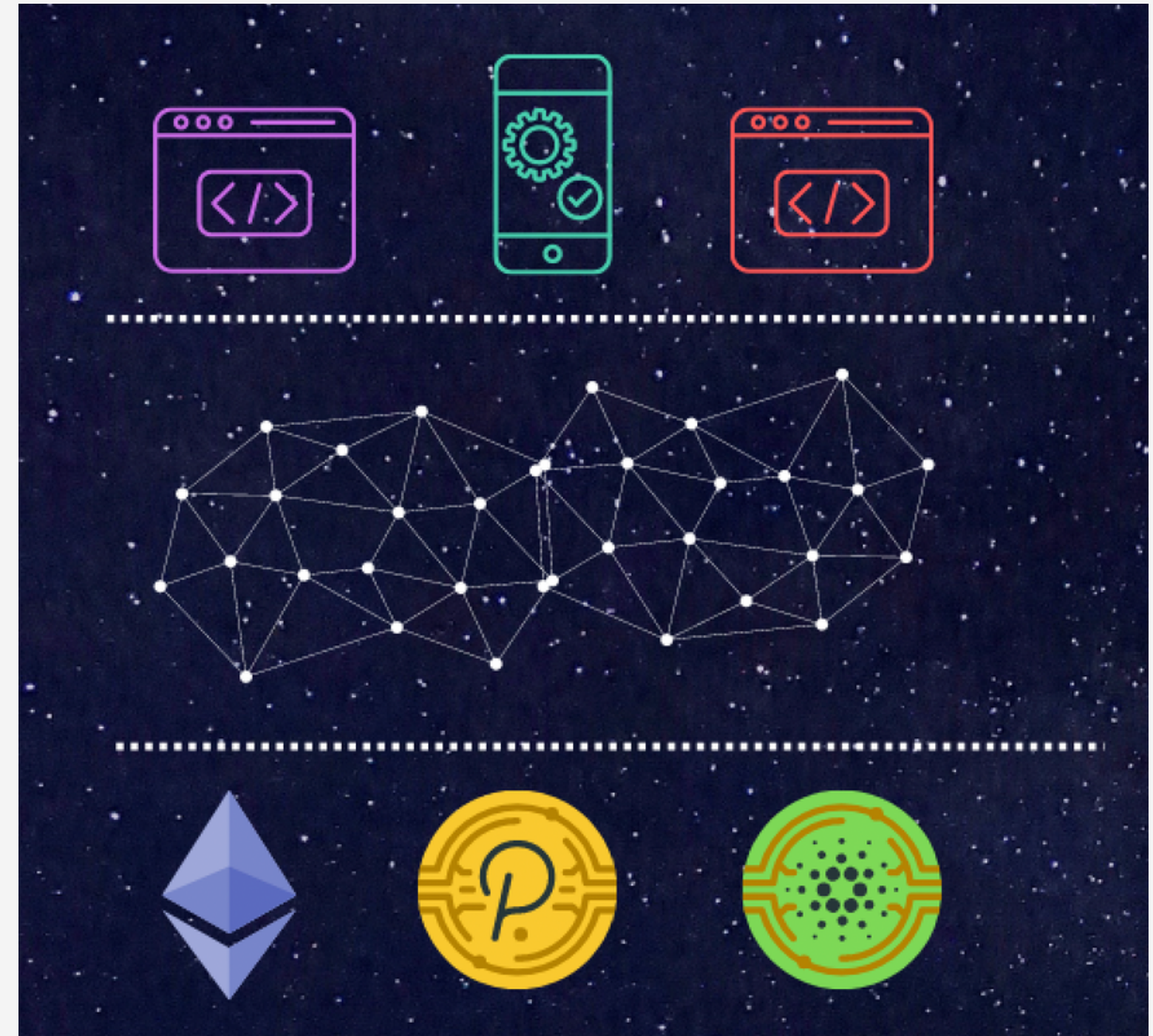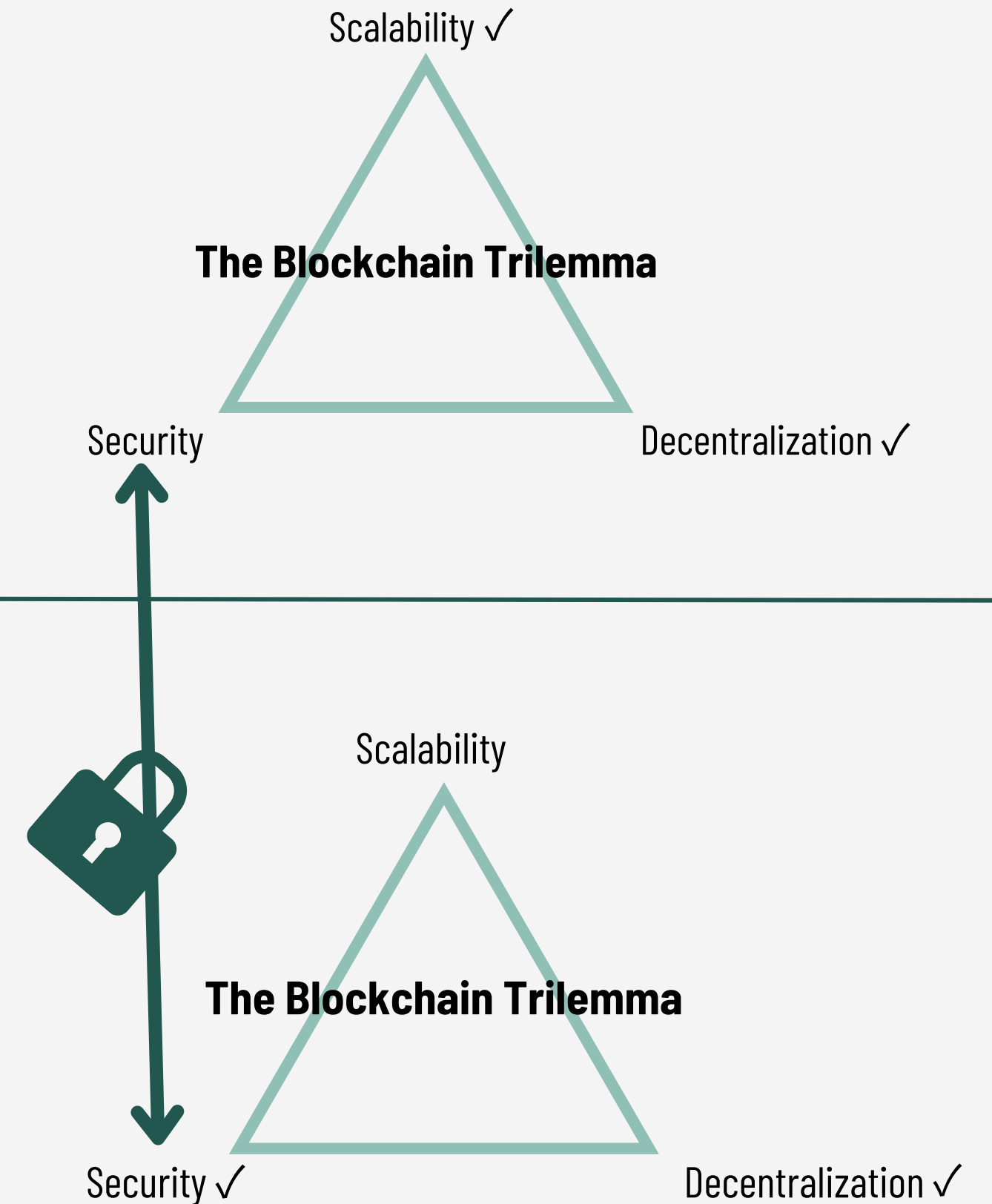
Layer 2

- Layer-2 nodes (CML* nodes) only trust other CML with certificates issued by layer1. This allows them to ignore Byzantine faults and reach cloud computing performance and scale.
- Programming logic and data are secured inside hardware (TPM) protected enclaves.
- Layer-2 nodes maintain the distributed state.

*CML is an NFT in the TEA network. A TEA mining node can only be activated by associating a CML with it.

Scalability ✓

The Blockchain Trilemma

Security   Decentralization ✓

Layer 1 - Ethereum

- Layer-1 nodes don't run application logic. They deal with Byzantine fault and issue certificates to layer-2 CMLs that pass validation through remote attestation.
- Manages TEA token economy.

Scalability

The Blockchain Trilemma

Security ✓   Decentralization ✓

The TEA Project's Two Layer Setup

Benefits of the TEA Project's Two Layer Setup

Multiple Roots of Trust

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The TEA Project has 3 roots of trust: **blockchain** (the layer-1 we run on top of), **time** (as measured by GPS), and **hardware** (embedded TPM chips on our mining nodes). The trust data for our layer-2 nodes are stored on the blockchain, allowing them to skip BFT-consensus and run as fast as the cloud. A separate state machine is kept on our layer-2 with no blocks and no TPS limits as transactions are ordered by time reported by the GPS modules.

No "roll-up" Function

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Both chains together enable cloud speeds with trustable decentralization. But TEA's layer-2 runs a separate consensus from the layer-1 it runs on top of, and our layer-2 doesn't roll-up txs to be confirmed by the layer-1.
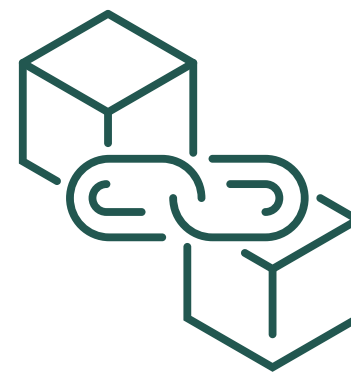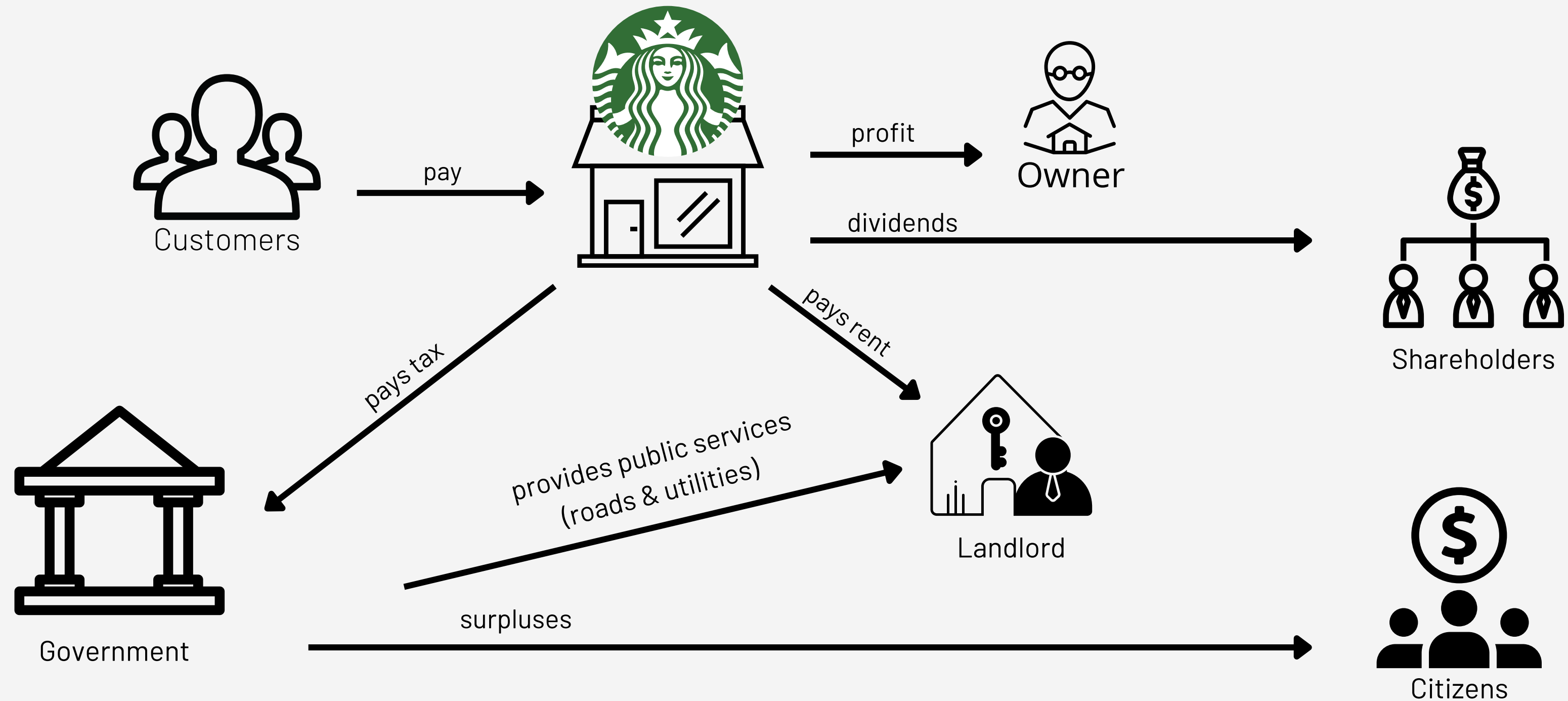
TEA can sit on top of many Layer-1s

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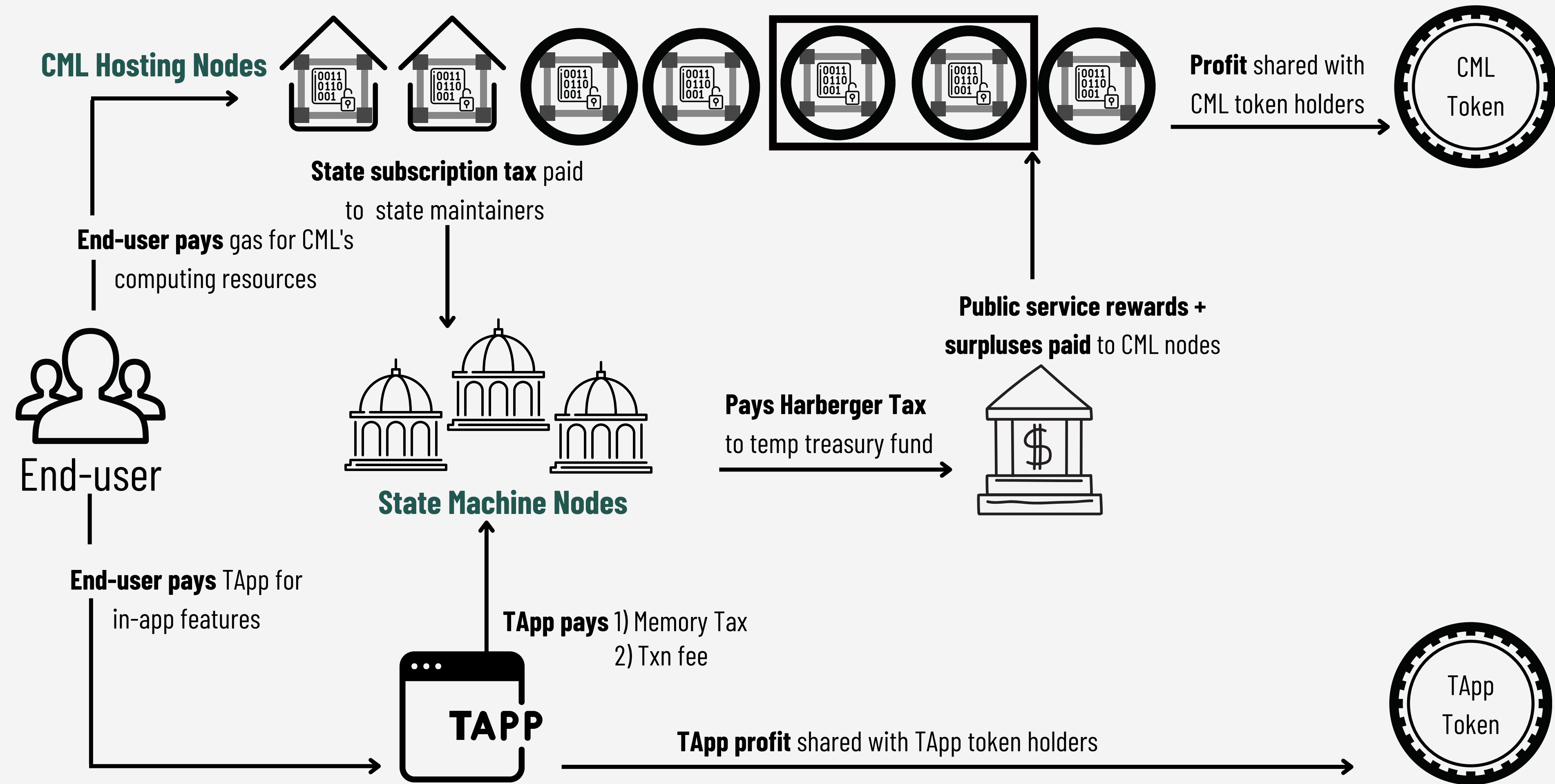
The TEA Project currently runs on top of Ethereum as its primary chain. Beyond Ethereum, other projects could integrate our layer-2 to run decentralized trusted computing tasks and unlock functionality beyond what smart contracts alone can provide.

Typical Economies Benefit All Participants

Customers — pay → [Starbucks store]
[Starbucks store] — profit → Owner
[Starbucks store] — dividends → Shareholders
[Starbucks store] — pays tax → Government
[Starbucks store] — pays rent → Landlord
Government — provides public services (roads & utilities) → Landlord
Government — surpluses → Citizens

The TEA Ecosystem Economically Benefits All Participants

CML Hosting Nodes

Profit shared with CML token holders

CML Token

State subscription tax paid to state maintainers

End-user pays gas for CML's computing resources

Public service rewards + surpluses paid to CML nodes

End-user

State Machine Nodes

Pays Harberger Tax to temp treasury fund

End-user pays TApp for in-app features

TApp pays 1) Memory Tax 2) Txn fee

TAPP

TApp profit shared with TApp token holders

TApp Token

TEA Example Use Case

An ideal platform for decentralized IoT

TEA Project IoT

- Decentralized: unstoppable with continuous availability.

- Monetize own data / co-ops of users who share and monetize their data. Enterprise buyers pay to access user data with their consent.

- Data privacy: no data leaks in trusted environment.

- Data stays local on responsive edge nodes.

Centralized IoT

- Centralized: runs only as long as central business entity continues running.

- User data reposted to social media / can monetize user data without consent.

- History of turning over raw footage to law enforcement without receiving user consent.

- Data flows back to centralized server.

TEA Example Use Case

TEA Project creates trustable decentralized edge nodes in the home, protecting private data

Accessibility

TEA Project turns homes into secure Web3 gateways

- A "mining machine" can be embedded in household routers and provide a secure entry point for accessing all Web3 resources.
- Code is run on this hardware inside the home, different than the current model of users sending private data outside of their control to centralized hosting.
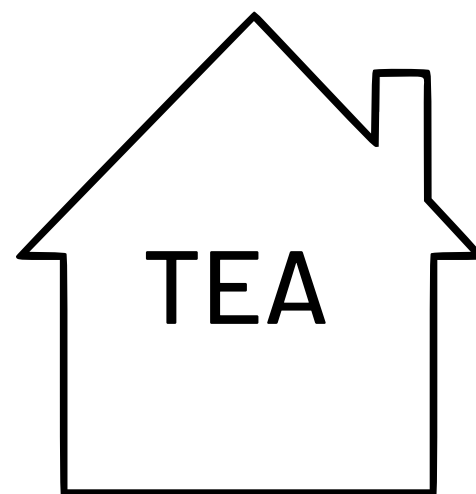
Innovation

If we can integrate TEA modules in decentralized edge nodes, we open up a new distributed computing infrastructure

- Data can remain on distributed devices and the code is sent to the data.
- The data and code meet together and are computed not at the data center but where the data is stored.
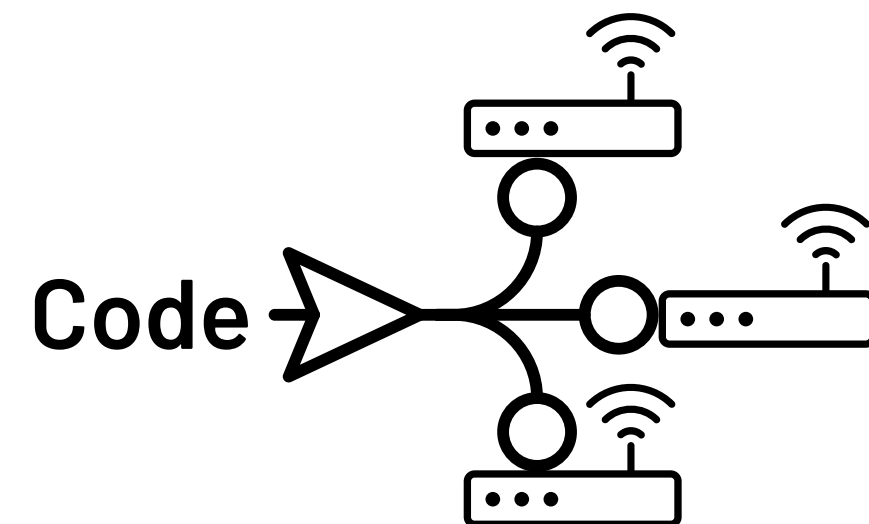
Hardware Support

The roadmap for supporting various Root of Trust (RoT) verification chains depends on the underlying hardware

Architecture	TEA Support	Technology + RoT Verification	Cloud IaaS for Rent?
Amazon Nitro	Completed	• Similar to TPM • Centralized cloud	✓
Raspberry Pi w. GPS & TPM	On roadmap	• TPM-Based • Decentralized	✗
3rd-Party Hardware Provider	On roadmap	• Partnership w. mining hardware manufacturers (Bobcat Miner already on board) • Allows dual-mining related projects (HNT & FIL)	✗

TEA Project's Two Tokens

TEA

- Utility token used as gas.
- Payment token for using TApps.
- 100 million total supply.

NFT: Camellia (CML)

- A TEA mining node can only be activated by associating a Camellia NFT with it. CML functions as a mining license and credit record.
- Miners buy new Camellia seeds through open bidding.
- Camellia seeds are unique NFTs. They each have varying defrost times, life spans, and productivity determined via an algorithm.

The 3-Phase Rollout

Phase 1: Miners

- The TEA Project aims to build a healthy ecosystem by starting with the miners.
- Miners plant CML into their mining machines and harvest TEA tokens from hardware mining.
- Mining machines host Web3 applications and are rewarded in TEA tokens based on the app's consumed computing resources.

Phase 2: Developers

- Focus shifts to onboarding developers, including tech education & outreach on how to build on the TEA ecosystem.
- Hackathons / grant program released and SDK available.
- Build apps using the TEA dev framework (similar 3-tier architecture to existing cloud applications, but without a host).
- Devs' apps listed in TApp store and hosted by miners.
- App revenue goes directly to a bonding curve shared by app developers, hosting miners, and investors.

Phase 3: Consumers

- Consumer outreach phase: now that rich TApps are available in the TApp store, the TApps are marketed to consumers.
- Positive feedback loop: more consumers enter ecosystem -> devs can see what apps consumers want -> devs focus on making TApps that meet consumer demand -> popular TApps financially reward both miners and developers.

Milestones

2021 Q2
- Second milestone ongoing in 2021
- Gluon wallet
- Web3 Foundation Open Grant
- Migrating TEA runtime to Amazon Nitro
- Seed round secured including investment from Hashkey

2021 Q3
- Preview 1 version launch
- Begin Go2Market strategy starting with miners' economy
- Testnet starts

2021 Q4
- Public mining in preview mode
- Rich dApps running on network

2022 Q1
- Testnet mining up to epoch 9
- TEA Party dApp released

2022 Q2
- Majority of business logic migrated from layer-1 to layer-2
- TEA framework dev guide released
- Post-seed round secured

2022 Q3
- Layer-1 EVM smart contract compatibility

2022 Q4
- Last testing epochs before mainnet
- Migrate to AWS Nitro for all nodes

2023 Q1
- Mainnet starts

FUNDING ROUNDS

Seed Round: $1 Million Investment with
$10 Million Valuation

Completed May, 2021, led by

HASHKEY
▶ Capital

Post-Seed Round: $1.4 Million Investment with
$50 Million Valuation

Completed April, 2022, led by

DRAPER DRAGON

A-Round Goal: Investment Goal and Valuation TBD

TEA TOKEN ALLOCATION

Total = 100 Million

Vesting Schedules	Immediate Unlock	Vesting
Seed, A, B Rounds	10.00%	5% per month for 18 months
Team and Community	0.00%	2 month lockup 5% per month for 20 months

*Seed round includes post-seed round

**Any investment rounds and other allocations not completed will go to the treasury

***The treasury includes the early mining reward fund which is used to pay the miners remote attestation rewards during the early stages after the mainnet launch

**** If B Round / IDO are skipped, this amount will go to a subsidy pool to incentivize miners in the early stages after mainnet launches

Donut chart segments:
- Liquidity Pool Rewards 6%
- Seed Round 12.8%
- A Round 10%
- B Round & IDO* 10%
- Team 30%
- Operations & Marketing 8%
- Community Contributors 10%
- Treasure (Reserve Funding) 13.2%
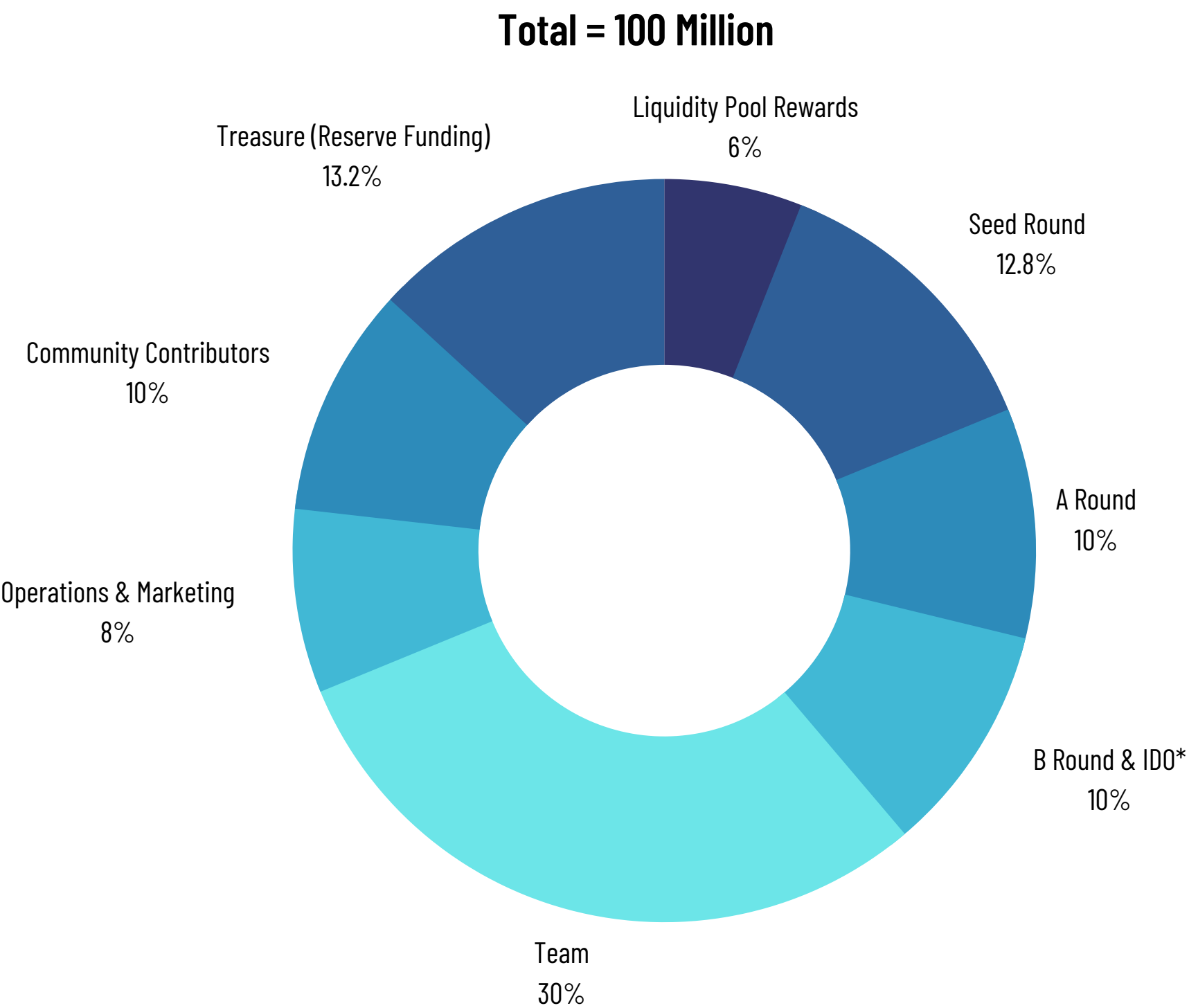
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Run rich dApps on the blockchain at cloud speeds by leveraging silicon security and time.