ANDURO

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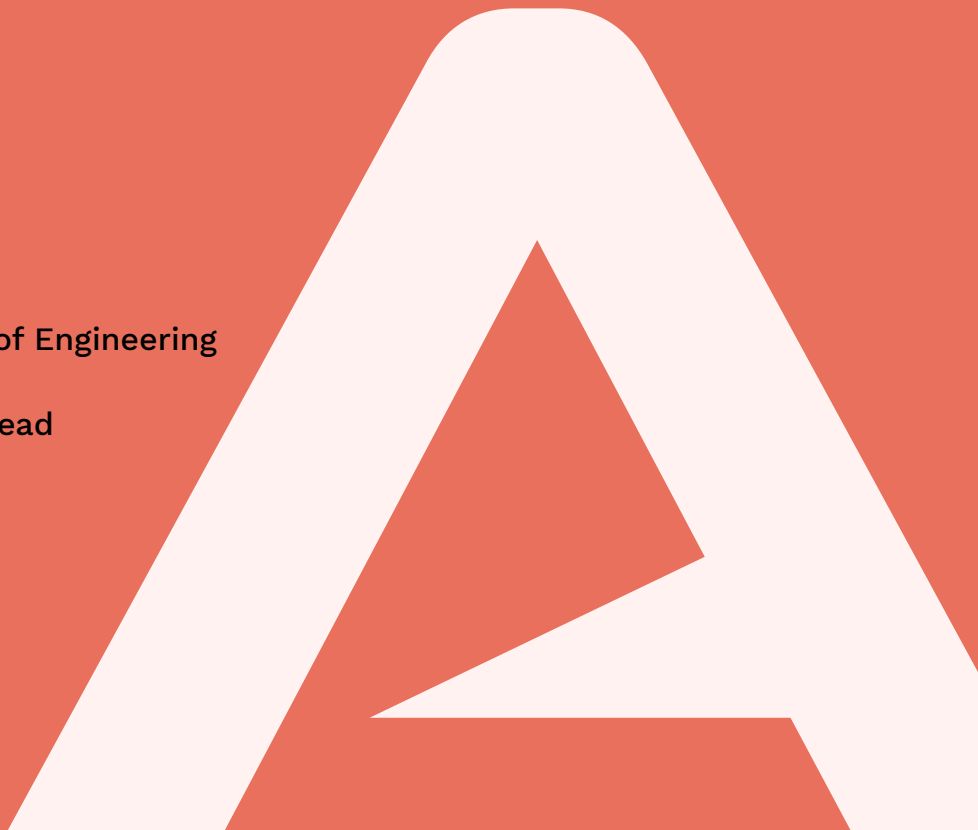

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1. OVERVIEW

Anduro is a multichain, Bitcoin layer-two network built to revolutionize the future of blockchain innovation and sustain the long-term incentives of Bitcoin Proof-of-Work. All Anduro sidechains are merge-mined with Bitcoin-pegged native assets, making this the industry's most Bitcoin-native layer-two. Governance happens via a diverse consortium of Bitcoin-forward entities known as the Collective, which will be phased out once trustless alternatives reach production readiness. Ultimately, Anduro is built to carve out a new path for blockchain adoption. Instead of borrowing narratives from other networks, Anduro is launching with two permissionless chains, Coordinate and Alys, that further use cases which uniquely demand Bitcoin's appeal and security. Coordinate is a UTXO chain with native asset issuance and other protocol-level innovations to help scale Ordinals. Alys is an Ethereum-compatible chain geared toward issuing and trading tokenized real-world-assets. Future chains are underway.

2. PURPOSE

Blockchain application innovators need Bitcoin. Crypto scandals have made the mainstream skeptical about blockchain, yet top applications continue to be built on networks with obscure tokens, software vulnerabilities, and regulatory uncertainty. Bitcoin—with its global brand, decade-long security, and commodity-like features—has the potential to help innovators preempt skepticism, avoid risky dependencies, and focus on real-world value generation.

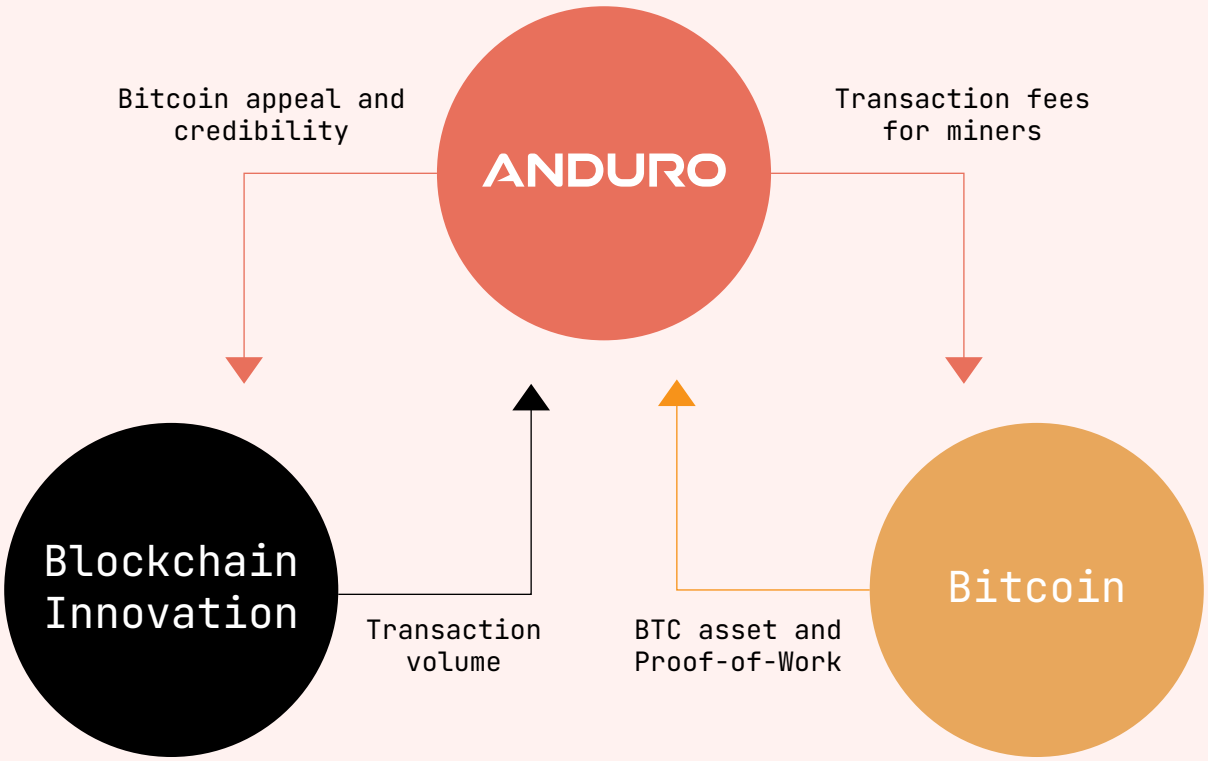
Bitcoin, for its part, can benefit by attracting application innovators. Bitcoin's consensus, Proof-of-Work (PoW), incentivizes miners via a profit motive in the form of block subsidies and transaction fees. However, block subsidies halve approximately every four years. Facing reduced mining revenues, some miners may be disincentivized from securing Bitcoin. To sustain miners' long-term incentives, attracting innovators and increasing transaction volumes via Bitcoin application layers is essential.

Unfortunately, Bitcoin lacks a robust and incentive-compatible application layer. Tinkering with the lean-by-design Bitcoin mainchain is infeasible, leaving layer twos and sidechains as the only channels for growing the pool of application innovators. Today's Bitcoin layer twos and sidechains, however, are failing to gain traction, as evidenced by the distribution of open source blockchain talent1 and venture capital investments2. Bitcoin layer twos and sidechains are also rarely Bitcoin compatible, as few involve PoW and many feature Bitcoin-agnostic native assets.

Anduro was founded to create a proper Bitcoin application layer. The incentives underlying Anduro are natively tied to Bitcoin's mainchain, eliminating the potential for a closed native asset pre-sale or an opportunistic, untested consensus model. Anduro founders, in fact, only benefit from transaction volumes, thereby linking the network's success to tangible

adoption. Application developers will, at last, have a reliable and accessible stack for integrating Bitcoin's appeal and credibility. The result will be a plethora of next generation blockchain applications backed by a more robust Bitcoin mainchain.

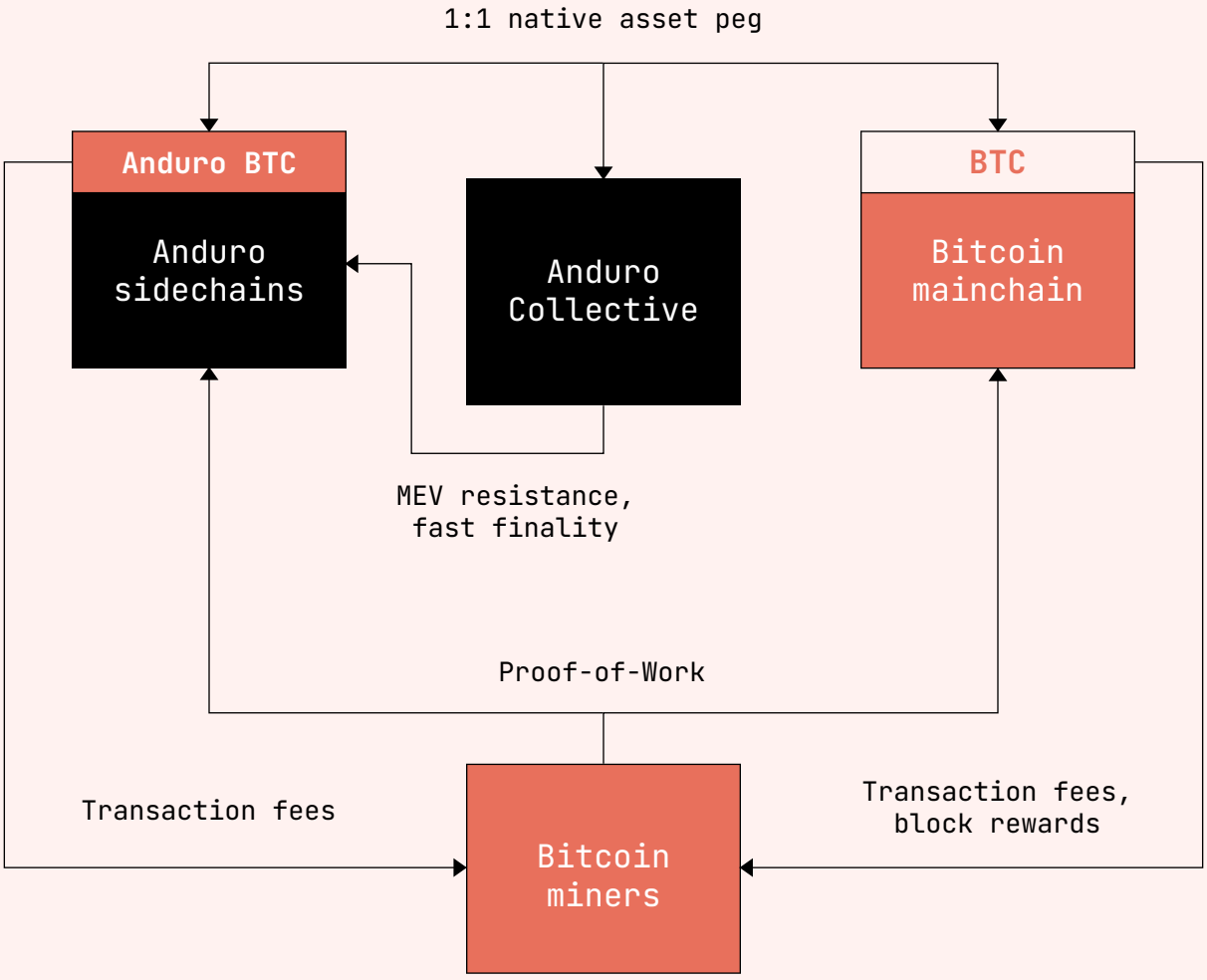
Figure 1: The relationship between Anduro, innovation, and Bitcoin



3. NETWORK

Anduro is a multi-sidechain network built on top of Bitcoin. There are three key components to Anduro: the Collective, the sidechains, and the sidechain native assets. The Collective administers the mainchain peg, thereby linking the value of Anduro BTC 1:1 with BTC. BTC must be locked on the mainchain to mint Anduro BTC, and Anduro BTC must be burned on a sidechain to unlock mainchain BTC. The Collective also participates in Anduro sidechain consensus by signing periodic blocks to promote MEV-resistance and fast finality. The real engine behind Anduro sidechain block production, however, is Bitcoin mining. Bitcoin miners simultaneously create blocks for Anduro and Bitcoin, winning Bitcoin-denominated rewards from both networks.

Figure 2: Anduro's network design



Principle 1: Anduro sidechains are designed to be the world’s most Bitcoin-native layer-two networks.

Anduro chains feature Bitcoin-pegged native assets and PoW-produced blocks to avoid inorganic activity. Chains that create new native assets invite regulatory scrutiny3, dissuade institutional adoption, feature pre-sale or pre-mine events that create narrow groups of insiders, and are dominated by speculators with no real use for the underlying blockchain. Meanwhile, free-rider problems abound when layer-two networks do not pay the Bitcoin mainchain for leveraging its appeal and security. If the drivers behind consensus are only nominally tied to Bitcoin’s decentralized profit motive, a Bitcoin layer-two's appeal, sustainability, and resilience are questionable at best.

Embedding Bitcoin and PoW at the center of Anduro is also strategic. Application developers can already choose from a variety of blockchains. What differentiates Bitcoin application layers is their link to Bitcoin's appeal and security. Just as fintech companies innovate payments without reinventing national currencies, Anduro improves Bitcoin’s usability without undermining its core characteristics.

Principle 2: Anduro leverages production-ready governance tools at launch. Trustless implementations will be adopted once they reach production readiness.

There is no trustless way to peg an asset to Bitcoin or to ensure faster finality and MEV-resistance on a sidechain. As a result, a group of Bitcoin-forward entities is being recruited to create the Collective, Anduro’s governing body. There are two types of members. Up to 15 will start as Functionaries and upwards of 50 as Contributors, but neither number is fixed. Functionaries independently run hardware to attest to mainchain peg transactions, sign periodic blocks that prevent reorgs and transaction reordering, reach

consensus via quorum or round robin (depending on the chain), and vote on governance matters. Contributors, alternatively, form part of governance discussions and help lead Anduro's marketing. Collective operations are open to all members and all procedures are written out in a Charter signed during onboarding.

To maximize functional decentralization, the Collective is designed to be diverse and dependent on Bitcoin miners. Collective members will be spread across the world and operate in diverse verticals. Some examples include Bitcoin thought leaders, cross-chain protocol experts, exchanges, custodians, stablecoins, bridges, and investors. This medley of actors must govern alongside permissionless Bitcoin miners, who perform SHA-256 merge-mining on every Anduro chain. Merge-mining enables miners to earn Bitcoin-denominated rewards from Anduro and Bitcoin simultaneously, without extra energy demand, and only at the minor cost of running a full Anduro node. This opportunity will attract most Bitcoin miners, bolster the security of Anduro block production, and lessen the risk of a rogue Collective.

Essential as it may be at launch, the Collective is designed to be phased out4. Sidechain native assets will be exchange tradeable, meaning users can avoid the Collective's pegging process. Long term, Anduro will adopt trustless mechanisms for pegging and consensus as the necessary technologies reach production readiness. Projects like BitVM, for example, are outpacing experts' launch expectations5.

Principle 3: Anduro's success is tied to a vibrant developer community, made possible by a multichain stack and first-rate developer experience.

Bitcoin needs an application layer that not only creates new forms of programmability, but also makes this functionality accessible. In some ways, Anduro takes the approach of most sidechains by lowering transaction fees and speeding up finality. Like most popular networks, Anduro's expansive

developer tooling guarantees that novice builders can integrate Bitcoin with a minimal understanding of the network. Anduro's most notable accessibility innovation, however, is its multichain stack. Anduro builders will not be forced to learn a new scripting language. If the Anduro community finds a certain stack is missing, they can upgrade Anduro's open-source chains or propose new ones. With fewer than 10,000 full-time developers across all open source blockchains6, Anduro recognizes its greatest responsibility is to lessen learning curves and engage more builders within and beyond Bitcoin.

4. CHAINS

Anduro is composed of many multi-purpose sidechains. At launch, the chains target tokenization use cases that uniquely demand the appeal and security of Bitcoin. All chains are open source, meaning they can evolve to meet unexpected needs. Though native interoperability may one day become necessary, the initial aim is to diversify and attract independent developer bases.

Coordinate: a Bitcoin-compatible sidechain for creating, transacting, and trading assets, tailored to existing retail DeFi on Bitcoin.

Coordinate helps scale novel forms of retail Bitcoin transacting. Ordinals and BRC20s, for one, demonstrated tremendous demand for Bitcoin-linked tokens7, but inscriptions assets suffer from notable user experience gaps. Coordinate's native asset issuance capabilities, low latency, and low fees make it a better place for inscriptions DeFi. Moreover, Coordinate will become a necessary release valve for times when mainchain transacting becomes impossible. These same arguments apply to the Lightning Network, whose channel logistics would be more manageable on Coordinate.

The roadmap for Coordinate involves many innovations that could advance consensus debates on Bitcoin and beyond. Problems like exchange slippage, royalty evasion, and inscriptions data pruning can be solved at the protocol-level. The resulting sophistication will attract open-source developers that broadly benefit Anduro.

Alys: an Ethereum-compatible sidechain with smart contract programmability tailored to issuing and trading tokenized real-world-assets from institutions.

Institutions are partial toward Ethereum-like programmability. Years of market-leading tooling and support on Ethereum has directed blockchain developers away from Bitcoin script8. By recreating the Ethereum developer experience, Alys eliminates Bitcoin learning curves and makes it easy for institutions to find implementers.

Ironically, one of the top use cases for institutions, real-world-asset tokenization, is particularly suited for Bitcoin. Experts estimate a $10 trillion market for real-world-asset tokenization9, and this has led to notable pilots on Polygon and Avalanche. Bitcoin, on the other hand, offers unparalleled security, network resilience, and regulatory clarity, qualities especially necessary for million-dollar, blue-chip assets. By offering a familiar stack, Alys eliminates the barriers for institutions to move their tokenization efforts away from less credible networks. Alys's link to the most prominent blockchain, Bitcoin, likewise lessens skepticism from non-crypto-native executives.

Roadmap: recruit influential and aligned partners to invest at the forefront of Bitcoin adoption.

Anduro is designed to catalyze experimentation in a way that is unique to Bitcoin. Rather than copying success from other networks, Anduro reimagines the future of blockchain adoption. This is made possible by compelling collaborators who also seek to be deliberate and creative.

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A multichain layer-two network on Bitcoin