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Ultron Whitepaper

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Disclaimer

This paper lays out the motivation, philosophy, tokenomics, technological approach, and roadmap for the ULTRON blockchain and ecosystem.

As a technical paper, its purpose is to provide a comprehensive introduction to ULTRON. It does not intend to, or attempt to, define the current status of the technology described. Nor does it provide an assurance of the successful outcome of the development plan described.

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Introduction

In recent years, society has been changing at an unprecedented pace. Technological advancements in digitization and new technologies such as cloud computing, quantum computing, artificial intelligence, blockchain, Web3, virtual reality, and the metaverse are shaping a new world rich with new opportunities and business models that are disrupting the traditional centralized economy and financial services industry.

These new technologies have the potential to replace the centralized financial institutions that act as intermediaries for all our economic transactions. Not only that, they offer a system that is fair, democratized, and that applies the same, or even a greater, level of integrity currently provided by mainstream financial corporations.

The banking sector, however, has resisted change. Their transactional processes are too slow, excessively costly, bound to too many unnecessary human intermediaries, and apply overly-complex bureaucratic mechanisms and outdated legacy operating systems. Furthermore, macroeconomic uncertainty is adding to inflationary pressure on the markets.

Consequently, the interest rates offered by the established centralized institutions are too low to maintain the value of assets, resulting in the real value of assets decreasing due to high inflation.

This leaves a vast pool of millions of users and affiliate partners looking for a better and more modern way to generate passive, rewarding digital assets and, at the same time, support the development of the future of Web3 infrastructure.

These digital community members seek Decentralized Finance (DeFi) solutions that they can trust and easily understand. Furthermore, they want to receive an APR reward much higher and more consistent than offered by leaving their funds in traditional centralized banking solutions.

Moreover, these users are looking for complete control of their digital assets and the possibility of participating in a digital economic system with secure but practical KYC requirements solution and less risk of data leakage.

To solve this issue, blockchain technology and DeFi offer superior asset preservation systems, thanks to the help of new technologies, automated market makers, and algorithmic asset management instruments that can provide economic sustainability.

One of the barriers to entry, however, is that these innovative mechanisms have a very steep learning curve that prevents access to these services for most IT illiterate consumers. On one side, they offer very appealing characteristics like ledger immutability and permissionless transparency, but, on the other hand, they lack user-friendliness. Furthermore, these solutions struggle to receive trust, legitimacy, or regulatory confidence. Many also struggle to provide enough liquidity to deal with the volatility of the digital assets markets to survive and scale.

While DeFi decentralized applications, or dApps, aim to replace the traditional banking intermediaries, too many projects focus on creating competing solutions with competing tokens, instead of emphasizing complete ecosystem growth by using the same native coin for the whole palette of digital asset management services. Consequently, the user journey becomes unnecessarily complex: different tokens are not always compatible and fail to synchronize effectively with each other, and understanding differences in product offerings, or service costs is challenging. Furthermore, it is difficult to economically incentivize the continuous development support of decentralized IT professionals in a sustainable manner.

Ultron fills this gap and solves these technical and economic problems by successively collating DeFi services within a supportive ecosystem that utilizes a single token.

Ultron's solution will be cost-effective, easy to understand, and capable of delivering the expectations of a wide and ever-growing pool of digital assets holders while mitigating risks.

No matter their economic background and technological understanding, everyone will be able to participate in the future of the digital asset market. Ultron's innovation stems from leveraging the technology of the most scalable, secure, cost-efficient, and developer-friendly blockchains and crypto projects with the implementation of a unique crowdfunding solution – a Staking Hub NFT.

Ultron's consensus protocol enables the Ultron L1 blockchain to deliver high throughput with fast transaction speeds, low transaction costs, and deterministic finality (which means that transactions can never be reverted, with no need to wait for extra block confirmations like in networks with probabilistic finality, e.g., Bitcoin). All this is achieved while being permissionless and decentralized.

The staking structures on Ultron are highly dynamic and lucrative. In addition to the novel Staking Hub NFTs, Ultron users can stake the native coin as validators (or delegators) and receive an APY of 5–13% APY.

By using a single native Layer 1 (L1) ULX coin, the Ultron community will be able to access a wide variety of decentralized digital asset management services and, at the same time, benefit from the ever-growing dApp services resources offered by an invigorated ecosystem.

Blockchain Challenges

Blockchain promises to mitigate against any future need for a centralized authority. It enforces digital "trust" between users that may have no pre-existing relationship or point of contact. In fact, it works by negating the need for trust by enforcing honesty in the system.

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However, the utility of blockchain has been restrained by real-world challenges such as transaction speed. Consider that, when a customer purchases with a Visa card, Visa is the only entity that needs to create a permanent record of this to enable the initial transaction. In contrast, blockchain provides a "distributed ledger", i.e., a permanent record that is widely shared.

The upside to distributed ledger technology (DLT) is that it provides "inclusive accountability". So, while Visa's transactions are managed by the central authority that is Visa, a blockchain enables anyone with the tech and an internet connection to ensure the system's integrity.

The downside is that this decentralization takes time. Early generation blockchains such as Bitcoin can process around 5 transactions per second, while Visa can achieve more than 1,500 transactions per second.

Solving such issues led to developers facing the classic **blockchain scalability trilemma**. This trilemma states that there is a compromise between:
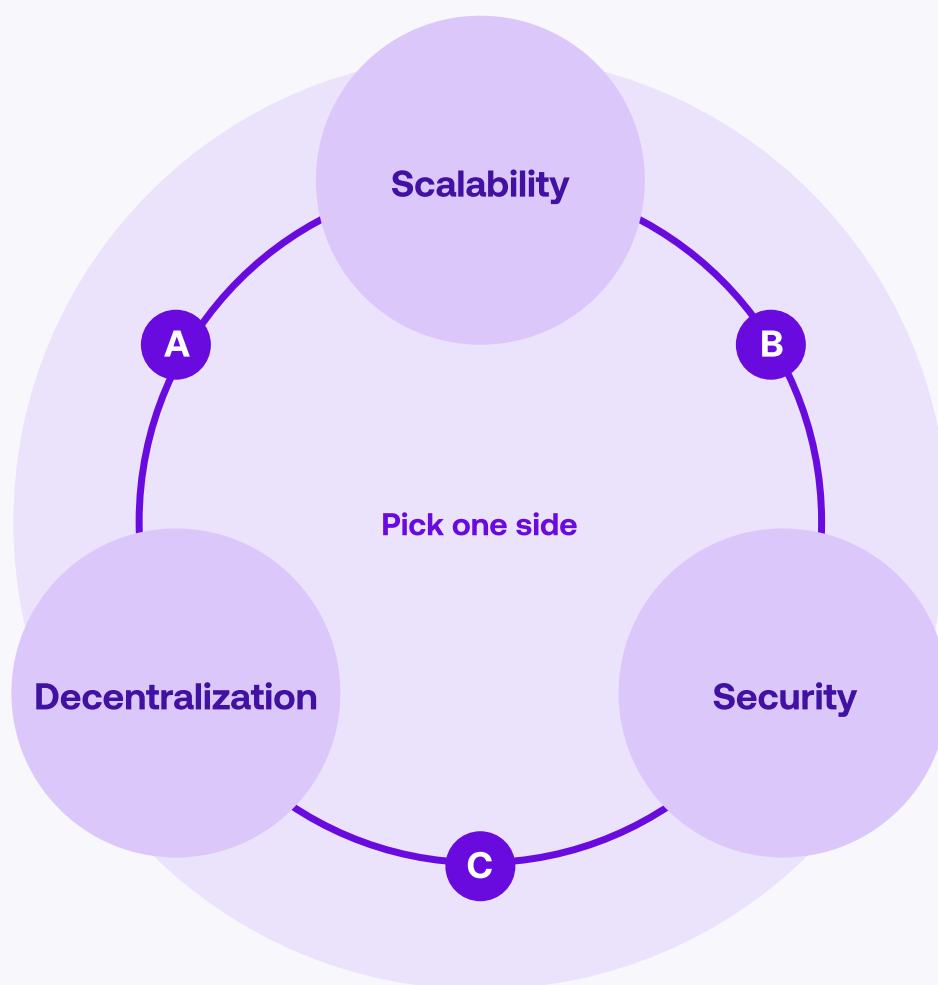
Even this trinity, however, does not define the limits of the technical challenges obstructing mass adoption of DLT. These include economic constraints such as high transaction fees, determining how finalization and consensus are achieved, and solving that issue discussed above – providing users with functional confirmation times.

Scale, Finalization, and Consensus

Well-known blockchains such as Bitcoin and Ethereum allow decentralized nodes to write transactions to blocks. These transactions must then be agreed upon by all nodes and the block accepted on the chain. The strategy used is to agree one block at a time.

The outcome of this approach is a compromise, in that, while a block may be approved in theory by the majority of nodes, if a transaction included on that block is later considered false, the entire block may be reverted, i.e., removed from the chain. Then valid transactions must be added to a new block.

The consensus method affects issues of scale also. When each node must verify and store each block, then the dilemma that your "chain is only as strong as your weakest link" comes into play. That is, the performance of the system is limited by the transaction speed of the nodes.

Decentralization vs. Functional Confirmation Times

The requirement to be able to revert a near "consensus" event is what dictates the blockchain finality time in distributed ledgers such as Bitcoin and Ethereum. Not only is consensus revertible, but confirmation time of that "consensus" is slow. Many blockchains, therefore, deal in "probabilistic finality", i.e., you can be close to certain that your transaction will not be reverted.

This is why "centralized" chains have been adopted for DeFi, to meet customers' expectations around how long a crypto transaction should take.

However, such a solution forces a compromise around decentralization – i.e., it must be given up. This makes them vulnerable to Denial of Service (DoS) attacks; see Section 3.2.1 Proof of Stake Security.

A better solution is needed, and has been applied, to the Ultron blockchain; see Section 3.1 for more on this **Robust Blockchain Protocol**.

Fees

In a Proof of Work (PoW) system such as Bitcoin, and the original Ethereum model, a major cost in the system is the fees paid to block miners. It is the cost inherent to the system that protects against certain security issues.

However, PoW requires powerful hardware which consumes large amounts of energy, contributing to the current energy crisis the economy faces. It also led to a form of centralization, in that the majority of mining pools came under the control of single entities. Furthermore, the fees constrain the function of the blockchain. They are simply too high to enable, for example, micropayments to support the functioning of dApps, for "trustless" gameplay, and more.

This is one of the reasons why Ethereum launched its Proof-of-Stake (PoS) blockchain in December 2020 – with a full release in September 2022. PoS offers a cheaper model that also mitigates specific security issues.

Accessibility

Another major challenge in the blockchain ecosystem is to overcome that barrier to entry: accessibility. DeFi's innovative mechanisms have a very steep learning curve that prevents access to these services for most IT illiterate consumers. In fact, a double challenge presents itself; there are accessibility challenges for the IT illiterate consumers and for the developers.

User Accessibility

Highly technical people tend to already be financially stable and, typically, time-rich. They can research and troubleshoot, and have an existing community to access support from if the first two approaches fail.

The economically dispossessed do not have such advantages. They are often time short, may have a poor understanding of the technology, and therefore face an apparently insurmountable barrier to entry into an ecosystem such as a blockchain DeFi marketplace.

Of course, the majority of potential community members probably fall somewhere in the middle of these two extremes.
It is vital that any emergent DeFi ecosystem recognizes, and works

to overcome, such barriers to entry. Till now, innovators in the blockchain space have not done this well, and utilizing blockchain technologies requires that IT illiterate consumers overcome a steep learning curve.

Developer Accessibility

Building meaningful blockchain technology requires a developer team with deep experience in: cryptography, network security, sidechain security, the base blockchain layer, distributed systems, smart contracts, etc.

However, most developers need only work with the smart contract code to develop dApps and the front-end code to enable users to interact with these. To truly remove the barriers to entry for most developers means abstracting away the requirement to work with the core blockchain to leave developers free to safely innovate in the dApp space.

Tokenomics

Tokenomics represent the value created by a blockchain ecosystem. They may be fungible tokens or non-fungible tokens, NFTs, or both.

Not all tokens are created equal. Meme coin tokenomics, for example, exist in inflationary ecosystems, often with no limits on supply. While this might make for experimental investing and "get rich quick" at-the-cost-of-others opportunities, they do not serve conservative investors who are interested in a more stable - finite supply ecosystem such as Bitcoin's or require genuine passive income.

Reputation

One of the less tangible, but significant, challenges for any new technology is that of building a reliable reputation. The centralized banking systems that DeFi offers to replace have done an excellent job of building their reliable reputations.

In a situation where a malicious player could emerge, i.e., the "take the money and run" approach, entities such as central banks have, instead, built the perception of security in that, time and again, the banks work honestly with our finances, and so we continue to trust them to do so.

To leverage DeFi ecosystems, community members must be able

to trust the blockchain mechanisms, the system security, the validators, and the smart contracts put into place. Therefore, a major challenge that the builders in the blockchain community must overcome is building a reliable reputation.

Another issue closely related to reputation is that of legitimacy. Many single solution blockchains, such as those seeking to sell NFTs or launch new coins, fail to establish legitimacy or regulatory confidence. Furthermore, many new players in the DeFi and blockchain arenas struggle to provide enough liquidity to deal with the volatility of the digital assets markets to survive and scale.

The Ultron Solution

There are significant challenges that the blockchain ecosystem has had to overcome. Ultron is based on a blockchain that successively manages to solve the Blockchain Trilemma by providing, at the same time, speed of transaction, security, and significant scalability; see Section 3.1–3.2 below to understand more about the security features offered by the protocol. The Ultron ecosystem also recognizes the challenges of building a reputation to establish a healthy user ecosystem and has strategies in place to mitigate these; see Section 3.3 Engaged Communities.

Competing in an already competitive environment requires a solid financial base to finance the resources needed to sustain the project for the long term. The Ultron Foundation has an economic strategy in place to address this; see **Section 3.5 Resilient Economics.**

A Robust Blockchain Protocol

Ultron leverages the best existing blockchain technology to achieve high scalability, security, and near-instant transactions.

Implementing this decentralized Web3 infrastructure is only possible thanks to a solid team of in-house blockchain developers with many years of top-notch development experience in some of the best IT corporations and software development companies.

As detailed in Section 2.1–2.3, significant challenges must be overcome to ensure that DLT, i.e., blockchain technology can be a functional technological solution.

Ultron aims to provide a decentralized blockchain with no central authority to provide irreversible and affordable transactions at scale. The Ultron chain does not use Delegated Proof of Stake (DPoS), has no leader selection, and the voting process requires no "masternodes".

Thanks to the Lachesis Consensus Algorithm (LCA), the Ultron chain implements leaderless PoS (LPoS) that supports:

- **Asynchronicity**
- **Leaderless consensus**
- **Byzantine Fault Tolerance**
- **Fast finality**

This leaderless consensus mechanism is integral to the Byzantine Fault Tolerance that enables the system to function even in the face of fraudulent transactions.

The Ultron chain's asynchronous transactions are confirmed in a matter of seconds; see Section 5 for a deeper technical overview. This parallel processing means that the nodes are validating transactions without all having to work through the same queue. Note that nodes in the Ultron blockchain do not need to pass entire blocks to each other; only events are synced between nodes. This consensus mechanism enables the validator nodes to scale to hundreds, or even thousands, of nodes. This further increases decentralization and, therefore, security.

This PoS approach not only supports fast transaction speeds and decentralization, but it also saves both computing power and, therefore, electricity when compared to a PoW approach.

Scalability

Ultron implements a Layer 1 (L1) blockchain protocol that mitigates scalability issues.

A novel model, the Directed Acyclic Graph (DAG), has been used to address the issue of scalability in a distributed ledger system. DAG's virtuous cycle enhances scalability as the network expands.

The model applies a form of sharding, in which the validator set is split into groups. The validators assigned to each shard process transactions for the accounts assigned to their shard and update the ledger. See more about validating in Sections 4.5 and 5.3 below.

The state (the record of accounts and transactions) and transaction processing (achieving consensus and processing messages, if required) are recorded on these disparate nodes – rather than attempting to achieve global consensus.

This model has been adopted by Fantom, and the Ultron network will provide an updated fork of Fantom, hence leveraging the

benefits of this approach. Over time, as more independent validators deploy to the Ultron blockchain, this will further secure the network and increase its decentralization.

Compatibility

Ultron supports Solidity, and the underlying blockchain is fully compatible with the Ethereum Virtual Machine (EVM). This means that developers can quickly port their existing Ethereum-based smart contracts and dApps to the Ultron blockchain.

Thanks to the EVM compatibility, ULX will be made available as ERC-20 tokens, meaning that it conforms to the Ethereum standard supporting trading via sidechains. In May 2023 Ultron successfully implemented its own ULC-20 standard.

Ultron also implements the de-facto industry standard Web3 API. That ensures that all existing crypto wallets are fully compatible with the Ultron blockchain.

Permissionless Decentralization

Ultron blockchain is permissionless in that anyone can run a node in the network. This means that any members of the community of users with the technical know-how and capacity may run a validator node on Ultron's mainnet and participate in securing the network. Even users without such capacity may assign a stake to

validators and, thus, engage in the support and expansion of the ecosystem; see Section 4.5 in Tokenomics.

One of the major challenges of decentralization – finality – is achieved in the Ultron chain thanks to DAG registering and agreeing on the event history. DAG is used to establish the exact final order of events (in particular transactions) independently on each node.

Leaderless Proof of Stake

Staking requires that participants hold digital assets in a crypto wallet to support the operations of the blockchain network. In return, holders are rewarded for their contributions.

Within the Ultron chain, staking supports both the security (see Section 3.2 below) and the economics of the chain by providing a mechanism to support distributed consensus.

Consensus is vital to ensure that the distributed network is both decentralized and immutable. It is achieved by the action of nodes within the chain – validator nodes. Validators commit a stake and agree to provision nodes according to a specified standard; see Section 5.3 for the technical requirements.

The validator nodes are provided by ecosystem participants in return for ULX rewards. The size of these rewards is based on a set of predetermined rules; see Section 4.5 Validator Reward Program.

Cryptography

Blockchain technology applies public-key cryptography based on elliptic curves over finite fields. Such cryptographic systems are almost ubiquitous now as this method is used to secure HTTPS connections by modern browsers.

Applying such cryptography allows Ultron to securely support both hardware wallets and software wallets and effectively use hardware acceleration to handle transactions.

Battle-Tested Security

The Ultron blockchain's implementation of the Ultron chain provides certain native security features.

Proof of Stake Security

The Ultron chain leverages LPoS, which is a leaderless PoS protocol, in favor of DPoS, that is, Delegated Proof of Stake. It has no leader selection or voting process and no concept of "masternodes". The LPoS requires 2/3rd validator participation: meaning that a malicious actor would have to successfully deny

more than 1/3rd of participants to successfully mount an attack.

In DPoS, a fixed number of elected nodes, the delegates, are selected to create blocks. The delegates are voted for by token holders, whose voting power directly depends on the number of tokens they own. The issue is that the silver spoon effect creeps into such a system as tokens and, therefore, voting power spreads unevenly.

So, while DPoS does well in terms of transaction throughput, it does not guarantee decentralization.

The LPoS protocol does not have any delegates. Instead, validators lock tokens as a "stake" to be allowed to generate blocks.

Restrictions are enforced within the Ultron chain ecosystem to ensure that validators do not behave maliciously. That is, they have to accept meaningful levels of risks (along with their delegators). These restrictions include enforcing an upper ratio of the validator's stake to the delegator's stake. The upper threshold is set at 1:10, i.e., for every 1 token staked by a validator, the upper limit of its delegator pool is a 10 token stake.

Protection Against Sybil Attack

In the blockchain context, a Sybil attack is one in which an

attacker subverts a system by creating myriad identities to run nodes, and applies them to gain a disproportionately large influence over the network. Alternatively, the attacker may run one node but attempt to operate that under multiple identities.

Blockchains such as Bitcoin's PoW are theoretically vulnerable to the variant of a Sybil attack, a 51% attack aka Double Spending. Such blockchains' susceptibility to attack is proportional to the hashing power. Any agent that can hold 51% of the hashing power of the network, can overcome the security of that network. However, Blockchains such as Bitcoin are essentially protected from attack, because, to be economically viable, the market cap of the currency must be both sufficiently valuable to justify the cost of obtaining that hashing power, and affordable to the attacker.

In a double-spend attack, a malicious actor attempts to spend their funds twice. Say Bob has 10 tokens and attempts to send 5 tokens to Alice and 6 tokens to Jill. While Bob → Alice and Bob → Jill are both valid transactions initially, this validity depends upon the status of the other transaction. It might be that both of these transactions of equal nonce both succeed in being entered as events – which is unlikely due to internal procedures – however, both transactions can not be confirmed thanks to the aBFT consensus algorithm.

aBFT determines the event's order, which is equal on all the nodes unless more than 1/3rd of nodes are malicious. First, the order of

events is determined, and only then are the transactions executed. This means that there must be an agreement that Bob sent tokens to Alice first or to Jill first. Whichever the agreement falls upon, let's say the 5 tokens sent to Alice for this example, this event will undergo a successful transaction.

The Bob → Jill transaction attempt will be rejected because its nonce was already "occupied" by the Bob → Alice transaction. Agreement on timing is everything.

Protection from a Parasite Chain Attack

In one variant of a Double Spending attack, the Parasite Chain attack, a malicious actor places a transaction of a specified value in the main DAG chain, while attempting to replicate this on a thread in an attempt to double-spend the tokens.

Ultron's blockchain protocol does not start with a main chain. It generates the main chain from threads of chains using a graph protocol related to network analysis in biological systems. This means that, theoretically, any thread can ultimately come to belong to the main chain. So, what prevents a malicious parasite chain from making a successful attack?

A thread chain must have a parent chain for whom the verification of each Event Block can be successfully performed. This means that a parasite chain with a false history – the parasite thread will

not be accepted unless the history it attests to reflects that of the main chain. Also, there must be a connection between the existing main chain and any thread to be added to it – preventing a parasite thread from creating a false history of Event Blocks and successfully merging. To successfully add a false history, more than 1/3rd of the nodes would have to be malicious.

Protection Against Denial of Service Attack

A DoS attack is typically attempted by flooding the targeted system with transaction requests. For example, a malicious actor may submit a large number of (valid or invalid) transactions from account/s within their control to attempt to overload the network.

Distributed blockchains are, by their nature, less vulnerable to DoS attack, or Distributed DoS (DDoS) attack, than centralized systems. Not only does the aBFT protocol allow for messages to be delayed or lost entirely, but it also makes the chain resilient to DDoS attacks. This relies, of course, on the chain being of a large enough size to provide the "coverage", i.e., to offer true decentralization. This is why the more centralized blockchains have been shut down repeatedly by DDoS attacks. The coin-based

system FTM, for example, has functioned on less than 100 nodes securely.

The tokenomics strategy applied by the Ultron system is designed to prevent DDos attacks; see Section 4 Tokenomics. The transaction fee applied to each transaction provides a prohibitive cost to performing DOS attacks. Even a minimal transaction fee means that it is extremely costly to flood the transaction pool.

A variant of the DDoS attack is to overload the validator nodes with a flood of valid events. In the Bob → Alice and Bob → Jill transaction example above, Alice pays the fee for the successful transaction, and Jill does not pay for the unsuccessful attempt. The validator, however, will see its gas power decreased by the gas limit of both transactions – as a penalty for originating conflicting transactions. The gas power value will limit the maximum number of transactions per second (TPS) that may be instigated by a validator, therefore, preventing any validator node from supporting such an attack strategy.

Quantum Secure

DAG offers quantum resistance, i.e., the underlying distributed ledger is less susceptible to quantum computers with high-level computing properties. Cryptography based on elliptic curves over finite fields is a widely-used cryptographic system. The Ultron Chain signatures are based on the Elliptic Curve Digital Signature

Algorithm secp256k1 curve. The security of this system is based on the hardness of the Elliptic Curve Discrete Log Problem (ECDLP).

Theoretically, any key can be broken; however, even with today's computing power, estimates suggest that the energy required would be equivalent to that required to bring all the water on Earth to a boil. This means that, by their nature, cryptographic protocols offer security against attack.

The potential threat comes from the development of a sufficiently large quantum computer. Of specific interest to cryptocurrencies is how this relates to the elliptic curve signature scheme. Experts theorize that a quantum computer could break this form of cryptography by or before 2030. As a theoretically quantum-proof cryptographic algorithm does not currently exist, the Ultron chain architecture implements multiple cryptographic systems supporting a modular architecture design; thus providing layers of resistance.

Engaged Communities

Ultron sets the foundations to create a viable and unique blockchain ecosystem that brings together a wide community of users from different economic, educational, and technological backgrounds.

We believe that Ultron blockchain technology, together with Ultron's unique digital assets management model, will create a solid base to support all kinds of distributed applications, ensure its users' digital assets gain, and encourage the growth of the whole Ultron ecosystem.

Ultron holds that, by building a diverse ecosystem that provides multiple services to a wide community of users, it will create reach and build trust at a much higher rate than a single-service player.

However, it is clear that part of successful brand building and community engagement is meeting the expectations of our community members. It is vital, therefore, to meet the needs of all the stakeholders involved with the Ultron Foundation.

Building Reputation

The single most important, yet intangible, property that an ecosystem such as Ultron must build is its reputation (see also Section 2.5; Blockchain Challenges). The quality of the User Interface (UI) and the User Experience (UX), the transaction speed of the blockchain itself, and the native dApps that are provided to support the community – all of these play into the ecosystem's reputation build.

The Ultron Foundation is committed to the principle that this reputation must be cultivated from the instant the brand is made available to the community.

Launch-Ready

To ensure that such expectations are met early, the ecosystem will launch with a vast and complete palette of stable native L1 dApps and decentralized digital asset instruments. This will ensure that the majority of the digital asset use cases provided by the blockchain are supported.

DApps

The deployment pipeline aims to deploy a new stable dApp at least once every two quarters; see Section 7 for the Roadmap. The launch-level or Minimal Viable Product Ultron Platform will offer a complete

 pool of dApp products, including:

- Auto-compounding Staking Hub NFT
- Decentralized Exchange (DEX)
- Cross Chain Bridges

This suite of tools is and the upcoming roadmap releases are available on the Ultron Foundation's website, under section "Roadmap*".

roadmap can be a subject to change, and is not binding.

Digital Wallet and ULX Emissions

In addition to the dApps and digital asset services, the project will provide digital wallet support for the ULX coin and the most relevant and established blockchains and provide a state-of-the-art block explorer to keep track of the tokenomics emission supply and all the transactions that occur on the Ultron blockchain.

Decentralization

Initially, the Ultron foundation will run 10 validator nodes in geographically distributed locations to secure

the network, as well as a separate scalable RPC API layer to provide a smooth and low latency connection to the network for the users' crypto wallets and different distributed applications.

Engaged Tech-Literate Community

Our tech-literate community is the backbone of the ecosystem. We recognize that there is an ever-growing pool of thousands of developers looking for more flexibility, vision, and development impact than arises from working for IT centralized corporations and traditional companies. They want to participate in the metaverse world of disruptive digital asset solution markets and fast-evolving opportunities.

The Ultron ecosystem has several strategies in place to ensure that when we build it, individuals will come to join the community, and they will stay:

- Tokenomics that rewards validators; see Section 4
- Familiar programming language support for dApps and smart contracts; see Section 3.4.4
- Financial motivation to innovate; see below

Financial Motivation

To generate the interest and the continuous support of the developer community, the Ultron Foundation will create a multi-million fund using up to 6% of the total supply of ULX.

Project applications that pass the extensive analysis and screening process of the Ultron Grants Foundation Commission will be eligible for the grant. Selection will favor projects that stimulate the ecosystem's growth and diversity.

The interaction between the development teams and the Ultron Grants Foundation Committee will be moderated through a dedicated forum to encourage the participation of both experienced external professionals and groups of independent developers. Everyone will be able to submit application proposals anonymously for the committee to thoroughly screen and analyze in-depth.

The teams behind the most successful applications will be invited to an interview to discuss their project further. Where projects are a good fit, the Ultron Grants Foundation Committee will help set the correct milestones to deliver the solutions via an agile methodology.

These digital funds will be distributed to the developers in the form of grants. These will consist of both ULX and stable coins, like USDT and USDC. This approach will mitigate against volatility.

The grants budget will cover education, living expenses, and the required equipment in relation to the size and impact the project will have on the whole Ultron and global blockchain ecosystem. Bigger budgets will be assigned to more advanced and complex solutions or research topics that will require a longer commitment.

Micro grants, or bounties, will also be given to the most interesting small-sized projects in the order of a few thousand USD dollar value.

A Listening Ear

The financial motivation is not simply about encouraging developers to propose and provide innovative applications to serve the ecosystem. It is also an opportunity to hear from our developer community.

This is vital, because blockchain technology is only in its infancy and is evolving at an unprecedented pace. Every day, new improvements to the underlying algorithms and computational processes are being tested and created, and new use cases are being designed by a global community of decentralized developers and mathematicians.

To always ensure the state-of-the-art steady evolution of the project, Ultron needs to be community-driven and adequately

incentivize the decentralized IT professionals to cooperate with its future development.

Engaged Wider Community

In addition to the developer community and crypto enthusiasts, there are users who simply want to collect valuable NFTs that can be displayed in NFT museums or be used as avatars with collectible items in multiple metaverses.

While these users may also emerge from the tech-literate community, NTF trading has a low barrier to entry.

Other users seek DeFi solutions to borrow funds or enjoy virtual gambling in lotteries and virtual casinos. A subset of users, primarily millennials, want to participate in high-tech VR metaverse games.

The ecosystem will be designed in such a way that every single component will be easy to grasp, even for those users that will access decentralized services for the first time. Ultron will not have any barriers to entry regarding who can use the platform.

It is the Ultron Foundation's ambition to build a brand that is attractive to all users across this wide tech-literacy range. Thanks to Ultron Foundation and the Ultron Grants Foundation Committee, Ultron will be the entity that brings together all these groups and creates a very active and involved decentralized community.

Encouraging Participation – Whatever a User's Tech Level

For those who own fewer coins or are not an expert in running the network nodes in the distributed systems, there is an option to participate in securing the network. They can delegate their stake to a validator node to be rewarded. The minimum stake for delegation is 1 ULX; see more in Section 4.5 Validator Reward Program.

A Self-Governing Ecosystem

In a few years, when there are enough decentralized validator nodes, Ultron will be positioned to migrate its governance into a fully managed community-driven decentralized autonomous organization (DAO) that will address the needs of millions of users, community members, and developers.

A DAO (Decentralized Autonomous Organization) is a decentralized organization whose governance rules are automated and immutably and transparently written into a blockchain. The benefits of a community-driven DAO are unlike those of traditional community platforms. These include:

- All governance decisions are transparent and auditable
- No one entity or sub-group can shut down or close a DAO
- No one person or organization can control the governance process

A DAO offers, arguably, one of the greatest possible outcomes of distributed ledger technology: empowering the community to work within common and shared goals, and operate with a genuine, flat hierarchy. In short, the DAO governance mechanism is fully democratized, transparent, and automatic.

Accessible Technology

To meet the expectations of all stakeholders (as per 3.3.2 above), the Ultron ecosystem will provide a complete, stable, and widely-tested ecosystem of dApps and decentralized digital asset products, with a single native utility coin (the ULX), managed via a Web3-compliant wallet in a user-friendly environment.

Base DApps & DeFi Products

DApps will be displayed according to their service category and ranked according to various criteria. Such criteria will include a section for digital assets, lending-borrow applications, digital yield optimizers and yield farmers, NFT marketplaces, virtual gambling applications, metaverse games, decentralized exchanges, Web3 development tools, blockchain cross-chain bridges, and IDO launch pads.

To promote dApps, the ecosystem will highlight new projects according to their submission date, trending projects according to user conversions, and high reputation projects according to users' feedback.

The Ultron Platform will offer a complete pool of dApp products, the details of which are presented below:

NFT Marketplace

Auto-compounding Staking Hub NFT

Initial Decentralized Exchange Offering (IDO) LaunchPad

Decentralized Exchange (DEX)

Cross Chain Bridges

Yield Optimizer

Lending-Borrowing Portal

Metaverse

NFT Marketplace

An NFT Marketplace is a gateway for users to mint, buy, create, trade, explore, sell, and exchange NFTs. These NFTs can be in the form of digital identity ownership of digital art pieces, such as paintings, 3D video graphics, collectible items, metaverse avatars, and digital audio files.

Staking Hub NFTs

The Staking Hub NFT is an innovative digital asset management instrument developed by the Ultron Foundation that enables users to acquire the ownership of a staking node that delivers APR returns in ULX coins daily. There will be seven tiers of Staking Hub NFTs with different characteristics to fulfill the needs of multiple users. The coins generated through these Hubs will be locked for a period and gradually unlocked to enable users to exchange the coins on a secondary market while guaranteeing enough liquidity to the complete ecosystem.

IDO LaunchPad

An IDO LaunchPad is a system to let users participate in the initial crowdfunding fundraising steps to raise digital capital and liquidity for a new blockchain project with a dedicated utility token that is not yet listed on the open market.

Cross-Chain Bridges

Cross-Chain bridges are technological mechanisms to connect different blockchains by providing viable interoperable characteristics that let users transact, share smart contracts, and store different coins on versatile digital wallets of multiple chains.

Yield Optimizers

A Yield Optimizer is an automatic digital service that enables automated bots to exchange transactions to optimize cryptocurrency returns in a highly mathematically-efficient way.

Lending-Borrowing Portal

A Lending-Borrowing portal is a platform that enables P2P lending and borrowing of crypto funds that are intermediary-free and deliver much higher interest rates than traditional banking institutions.

Ultron Swap (DEX)

A DEX is a digital platform that enables the efficient exchange of multiple crypto asset pairs without intermediaries. The trading pairs will cover the major stable coins like USDT, DAI, USDC, and the native ULX coin. The transaction fee will be as low as 0.3% per transaction.

The Ultron team will continuously monitor the blockchain ecosystem, in particular, DeFi, and if other new revolutionary products start to gain enough traction, they will be included in the deployment pipeline. Furthermore, Ultron is also actively looking into incorporating NFT-based games and GameFi applications in the dApp's palette.

Interoperability

Thanks to a continuous auditing process, effective, fully interoperable, ad hoc communication with other blockchains through cross-chain bridges can always be guaranteed. Ultron will support the assets on the most popular blockchain networks like Ethereum, Avalanche, Polygon, Fantom, Binance Smart Chain (potentially others such as Tron or Solana may be added later as well) and stable coins like Tether USDT, Circle USDC, and the DAI coin. These assets will be in the native or wrapped form according to the compliance required by the different systems.

Open Source

The code deployed on the Ultron blockchain has been available on open source repositories in GitHub; since the NFT Staking Hub's sales launch.

Familiar Language Support

Ultron will support Web3 API for multiple widely-used standard programming languages like C#, Python, Go, Java, JavaScript, and smart contracts written for EVM-compatible frameworks like Solidity and Vyper, to leverage existing libraries of smart contract templates. Moreover, Ultron will also encourage further development and integration with well-known tools such as Truffle, MetaMask, and Remix.

Its containerized environment will be able to integrate additional programming languages and development tools as needed.

Solidity

Ultron supports Solidity, and the underlying blockchain is fully compatible with EVM. This means that developers can quickly port their existing Ethereum-based smart contracts and dApps to the Ultron blockchain.

It is anticipated that Solidity will remain the language of choice for smart contract development. By supporting object-oriented Solidity, the Ultron blockchain allows developers to apply their existing knowledge. Solidity is a high-level language that supports variables, functions, classes, arithmetic operations, string manipulation, and more.

EVM-Compatible

The Ultron blockchain is compatible with the EVM: the runtime environment for smart contracts applied to Ethereum. Because it is sandboxed, this means that code running inside the EVM has no access to the network, filesystem, or other processes. Smart contracts even have limited access to other smart contracts.

This provides both a level of security and familiarity for dApp developers.

Turing-Complete

To support dApps in all their possible use cases, it is vital that the VM is Turing-complete within the constraints that the number of steps acts as a limiter due to the max gas limit per transaction.

Web3-compatible Wallet

The Ultron platform implements the standard JSON PRC API to link users' MetaMask or any other Web3 wallets for use within the Ultron ecosystem.

Resilient Economics

As discussed in Section 2.5, Blockchain Challenges, many entry-level players in DeFi and blockchain fail to establish resilience to survive the volatility of the digital assets markets.

Ultron has three major strategies in place to ensure that it is resilient to such challenges:

1. Provide a meaningful MVP ecosystem to build the brand's reputation around; as per Section 3.3 above.
2. Bootstrap the economics.
3. Deflate the Ultron ecosystem and its native coin, in particular.
4. Staking Hub Rewards Issuance Control

Bootstrapping

One of the most noteworthy innovations of the Ultron project is the implementation of the first Staking Hub NFT ongoing sale to finance the resources needed to sustain the project for the long term. The Staking Hub NFT is an innovative digital asset growth instrument developed by the Ultron Foundation that enables users to receive daily APR returns in ULX coins. The majority of the ULX supply is destined for the Staking Hub rewards distribution.

This visionary crowdfunding mechanism will offer the possibility of purchasing Staking Hub NFT rewards with up to 0.2% daily APR in the first year. These purchase blocks are divided into seven different tiers, allowing different budgeting options:

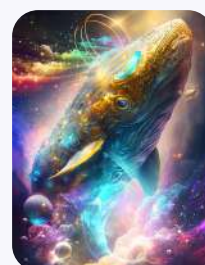Solar Ranger   Star Catcher   Space Surfer   Galaxy Explorer

Sun Seeker   Moon Walker   Cosmic Whale

It remains possible to add additional tiers in the future.

The maximum supply for the Staking Hub NFT rewards is limited to 55%, i.e., 27.5 billion ULX; see more in Section 4 Tokenomics. The private presale of Staking Hub NFT started in March 2022 and successfully opened to the general public on the 1st of June 2022. The NFT crowd sale aims to finance up to 50 thousand Hubs by the end of 2022 and up to 100 thousand the year after. While it may appear a very ambitious goal, it remains highly achievable thanks to the extensive network of Ultron's influential and established affiliate partners.

These players can already count on a vast community of active users in their respective e-commerce and entrepreneurial capital platforms. This mechanism will be capable of scaling up Total Value Locked, or TVL, at an unprecedented speed, while dramatically reducing the complexity around staking funds on the blockchain; supporting crypto novices. Financial viability and transaction security are ensured thanks to the 10 validators of the Ultron Foundation that have substantial participation in an initial base multi-million fund to sustain the project.

Deflation

To mitigate against an inflationary economic environment, a significant percentage of the profits and transaction fees generated through the native dApps, will be used by the Ultron Foundation to buy back ULX coins.

This creates deflationary pressure on the Ultron ecosystem and raises the demand for ULX. It will also ensure that the project will remain sustainable in the long term and vastly improve the tokenomics incentives in comparison to competing blockchains and other L1 solutions. Ultron is poised to become a disruptive game-changer.

Digital Asset Growth

The Ultron blockchain leverages the following characteristics:

1. Digital assets generation mechanisms that include:

   - Staking Hub NFT rewards with up to 0.2% daily APR in the first year following purchase and an optional auto compounding mechanism
   - Automated stake of ULX to receive xULX interest incentives (via a DEX)
   - Yield Farming of ULX in Liquidity Pool pairs
   - Rewards for running a validator node – attractive APY with rewards correlated with the locking period

- Delegation of ULX coins to decentralized validators

A major advantage of Ultron is its capability to remove points of central control in the form of intermediaries, and barriers to entry, which are standard in the traditional centralized financial sector – while at the same time leveraging the multiple advantages of DeFi. Ultron will empower traditional banking clients to benefit from the new digital assets growth streams enabled by blockchain financial instruments.

Conclusion

Ultron leverages the best-in-class existing blockchain technology to achieve high scalability and security to provide the Ultron community with incredible scalability and to sustain a constantly increasing number of transactions and validator nodes. This supports both high throughput and quick finality of transactions. In fact, transaction finality times are anticipated to be less than 2 seconds. This fast functional ledger providing a developer-friendly environment combined with developer-engagement incentives is well-positioned to nurture a thriving community.

Part of the challenge of removing barriers to entry for all community members is ensuring that the ecosystem is accessible to all levels of users. The Ultron Foundation has scaffolded the system's design to ensure that the Minimum Viable Product (MVP) features support this ambition. By embracing the challenge of building a thriving community supported by an accessible, reputation-based ecosystem that incentives innovation and development, the Ultron Foundation is confident that it can nurture the engagement required to ensure legitimacy and scale.

One of the dominant features of the distributed ledger ecosystem are the ongoing "next biggest hack" announcements as malicious players successfully leverage security vulnerabilities of

smart contracts, blockchains, and their sidechains. The public perception that arises from consuming such stories probably represents one of the biggest barriers to entry into the crypto ecosystem for naive users. The Ultron Foundation, recognizing security as vital to the ecosystem, has selected the best-in-class solution to support the Ultron chain.

Part of the challenge of surviving to scale is creating a robust economic system. Ultron Foundation's solid economic approach creates deflationary pressure on the Ultron ecosystem.

Tokenomics

Building an open and deflationary by design tokenomics is an essential component of building market and users' confidence. This is the strategy that the Ultron Foundation is committed to.

Tokenomics

A robust ecosystem built on solid tokenomics has several virtuous characteristics:

- The utility coin is integral to the ecosystem's function
- The ecosystem protects itself from inflation (i.e., coins are bought back)
- The coins are mobile; i.e., it is easy to transfer wallet to wallet without any central control or intermediary
- The coin has multiple utilities; e.g., track value when staked or held, can be used for fees, etc.
- Full transparency over coin functionality
- Transactional costs and energy consumption stay low
- No extremes of asymmetry in coin distribution

This section presents Ultron's tokenomics to provide full visibility over how Ultron utility coins flow within the ecosystem. It details how the ecosystem responds to inflationary pressures and incentivizes stability and growth of the Ultron ecosystem.

Ultron Ecosystem Tokenomics

The Ultron Ecosystem supports 3 coins/tokens:

1. **ULX**
2. **xULX**
3. **wULX**

Basic ULX metrics

Initial coin supply: 4,787,500,000 ULX

Maximum coin supply: 50,000,000,000 ULX

The Ultron Coin (ULX) standard native coin performs a similar function to ETH in the PoS Ethereum blockchain. ULX is the native utility coin of the Ultron Blockchain, used to secure the network through staking, track and support the system of network fees, and fuel the ecosystem of native dApps. **Figure 1** presents ULX maximum supply allocations.

ULTRON (ULX) Allocation of Digital Assets

This maximum supply of 50 billion ULX will be distributed according to the following allocations:

- **55% Staking Hub NFT program**

- **35% Ecosystem**

  - 4% Staking validators

  - 6% Developers grants reserve

  - 25% Liquidity & Community treasury

- **10% Team**

  - 8% Core team

  - 2% Advisors

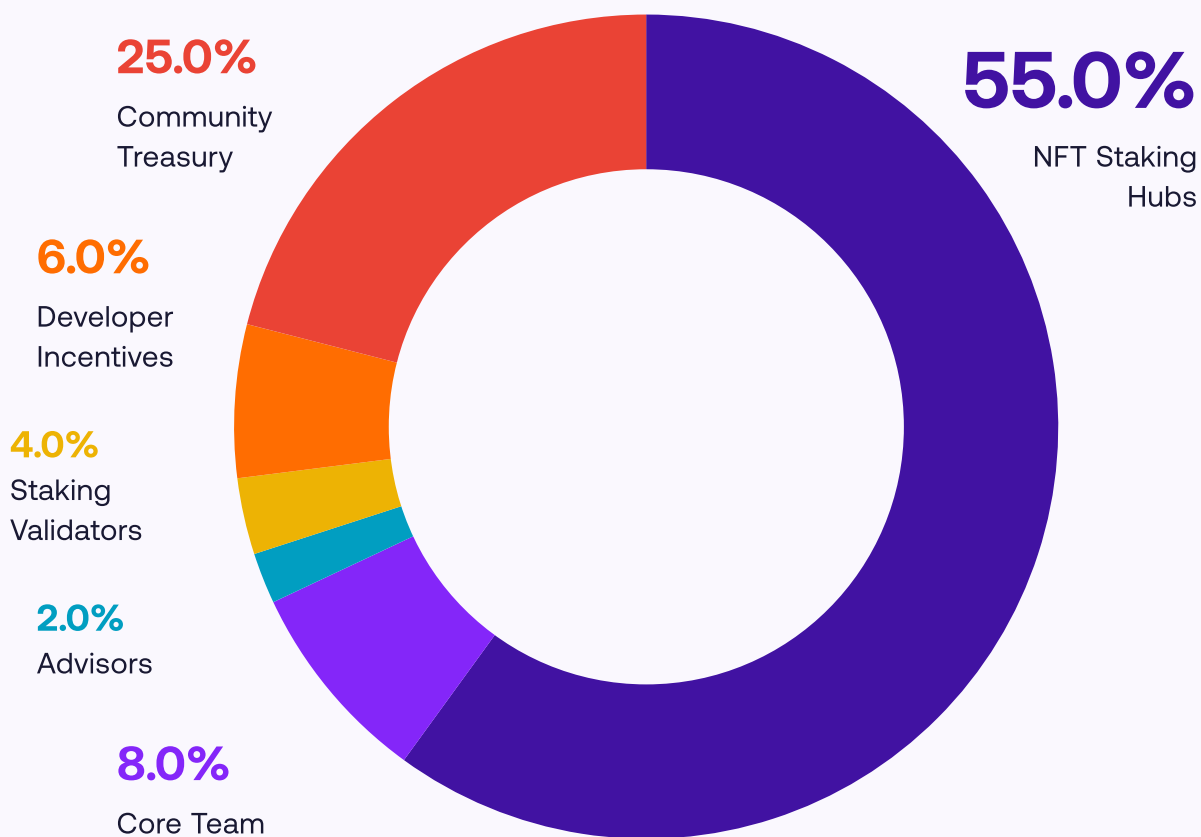See Figure 1 for a breakdown of these allocations as proportions of the total supply.

25.0%
Community
Treasury

6.0%
Developer
Incentives

4.0%
Staking
Validators

2.0%
Advisors

8.0%
Core Team

55.0%
NFT Staking
Hubs

Figure 1 ULX maximum supply allocations.

Expected Coin Release Schedule

■ Ecosystem Community Treasury ■ Ecosystem Staking Validators ■ Team Core Team
■ Ecosystem Developer Incentives ■ Team Advisors ■ Buyers NFT Staking Hub

Coin release schedule details
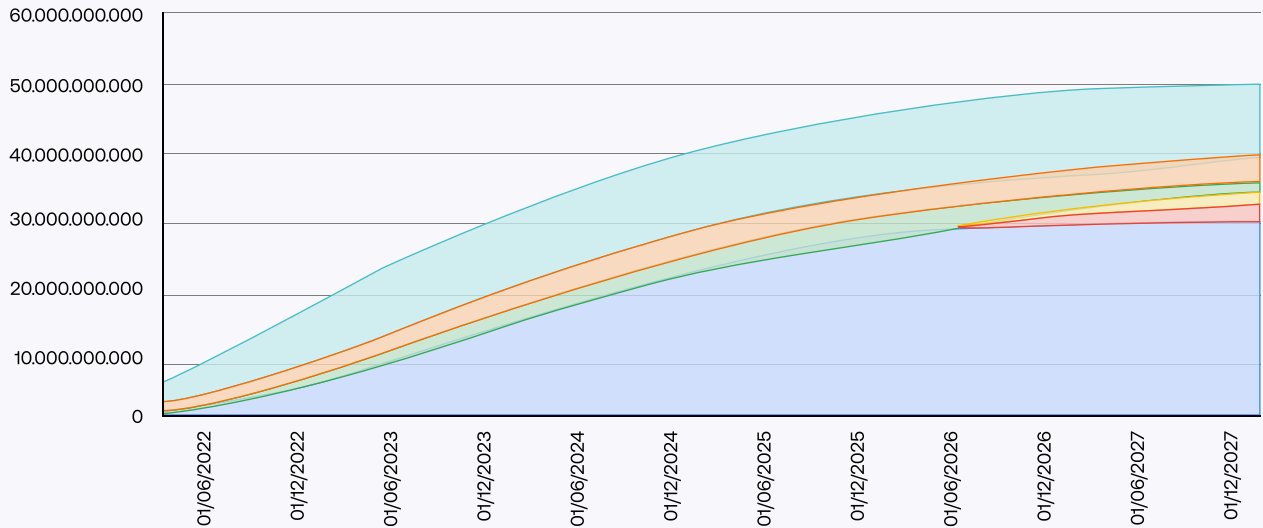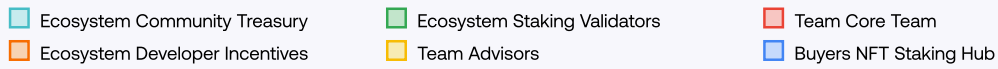
Coin Release Schedule for Investors, Team, and Ecosystem

■ Ecosystem ■ Team ■ Buyers

Investors, Team & Ecosystem

Coin release schedule details
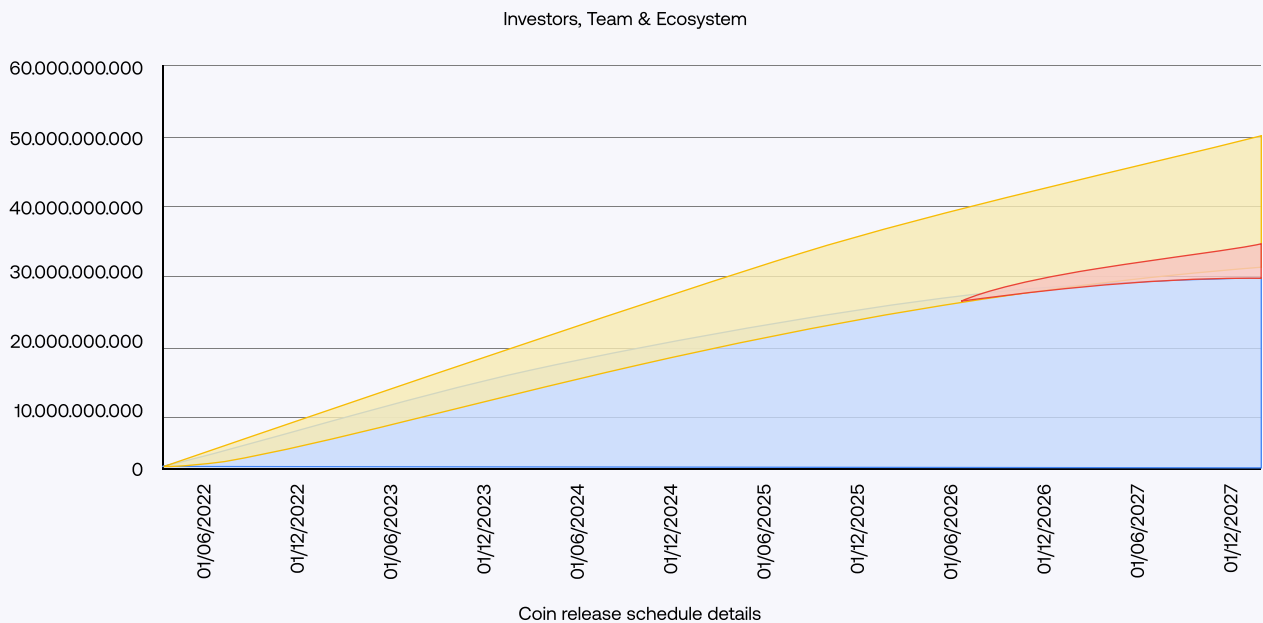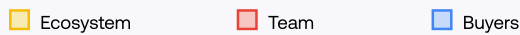
Buyers

Expected Coin Release Schedule in Detail

	Buyers	Team	Ecosystem
	NFT Staking Hub	...	...
01.06.2022	412 500 000	...	...
01.12.2022	2 475 000 000	...	...
01.06.2023	6 600 000 000	...	...
01.12.2023	11 412 500 000	...	...
01.06.2024	15 812 500 000	...	...
01.12.2024	19 250 000 000	...	...
01.06.2025	21 312 500 000	...	...
01.12.2025	23 375 000 000	...	...
01.06.2026	24 750 000 000	...	...
01.12.2026	26 125 000 000	...	...
01.06.2027	26 812 500 000	...	...
01.12.2027	27 500 000 000	...	...
(ongoing)	ongoing if not 100% sold out	...	...
Total Unlocked	27 500 000 000	...	...
Remaining Supply	0	...	...

Team

Expected Coin Release Schedule in Detail

	Buyers	Team		Ecosystem
	...	Core Team	Advisors	...
01.06.2022	...	0	0	...
01.12.2022	...	0	0	...
01.06.2023	...	0	0	...
01.12.2023	...	0	0	...
01.06.2024	...	0	0	...
01.12.2024	...	0	0	...
01.06.2025	...	0	0	...
01.12.2025	...	0	0	...
01.06.2026	...	1 000 000 000	250 000 000	...
01.12.2026	...	2 000 000 000	500 000 000	...
01.06.2027	...	3 000 000 000	750 000 000	...
01.12.2027	...	4 000 000 000	1 000 000 000	...
(ongoing)	...	*lockup 24 months vesting 24 months*	*lockup 24 months vesting 24 months*	...
Total Unlocked	...	**4 000 000 000**	**1 000 000 000**	...
Remaining Supply		**0**	**0**	...

Ecosystem

Expected Coin Release Schedule in Detail

	Buyers	Team	Ecosystem		
	...	...	Staking Validators	Developer Incentives	Developer Incentives
01.06.2022	...	...	500 000 000	750 000 000	3 125 000 000
01.12.2022	...	...	1 000 000 000	1 500 000 000	6 250 000 000
01.06.2023	...	...	1 500 000 000	2 250 000 000	9 375 000 000
01.12.2023	...	...	2 000 000 000	3 000 000 000	12 500 000 000
01.06.2024	...	...	2 000 000 000	3 000 000 000	12 500 000 000
01.12.2024	...	...	2 000 000 000	3 000 000 000	12 500 000 000
01.06.2025	...	...	2 000 000 000	3 000 000 000	12 500 000 000
01.12.2025	...	...	2 000 000 000	3 000 000 000	12 500 000 000
01.06.2026	...	...	2 000 000 000	3 000 000 000	12 500 000 000
01.12.2026	...	...	2 000 000 000	3 000 000 000	12 500 000 000
01.06.2027	...	...	2 000 000 000	3 000 000 000	12 500 000 000
01.12.2027	...	...	2 000 000 000	3 000 000 000	12 500 000 000
(ongoing)	...	...	*unlocked, based on users adoption*	*unlocked*	*unlocked*
Total Unlocked	...	...	**2 000 000 000**	**3 000 000 000**	**12 500 000 000**
Remaining Supply	...	...	**0**	**0**	**0**

Staking Hub Rewards

In practice, the Staking Hub NFT is a distribution unit that generates fixed passive digital rewards on a daily basis. The coins generated through these Hubs will be locked for a fixed period and gradually unlocked yearly to enable users to exchange the coins on a secondary market.

Initially, the only way for users to receive the ULX coin is to acquire the Staking Hub NFT – which gives them the right to receive a passive digital assets reward. The base stake is released over 5 years from the Staking Hub NFT purchase date.

Table 5. Yearly APR for 5-year stake return, when Auto-Stake function is set to on.

#	APR	APR/365	Unlocking
1 year	73%	0.2000%	**30%**
2 year	37%	0.1000%	25%
3 year	18%	0.0500%	20%
4 year	9%	0.0250%	15%
5 year	5%	0.0125%	10%

Tokenomics

The seven tiers of Staking Hub provide different characteristics to fulfill the needs of multiple users. The higher the tier, the higher the Staking Hub price and the ULX incentive for the user. Halving rewards are calculated on a person by person basis.

Daily reward payout starts each day at 12:00 (UTC), while the exchange rate USDT/ULX to calculate the Cap value is recorded at 00:05 (UTC).

The Formula to calculate base stake in Staking Hub NFT

NFT base stake = NFT price / (ULX market price / 1.0)

After the Ultron mainnet launch, the initial staking value of the NFT Staking Hub is defined based on the market price. For the base stake calculation (to prevent hyper inflation) the minimum ULX price is 0.01 USDT, despite the actual ULX market price.

NOTICE ABOUT THE EXCHANGE RATE
The ULX coin exchange rate is automatically retrieved from the Ultron swap (DEX) protocols in the moment when staking hub NFT is minted. Due to confirmation time of pending transactions on blockchain and queue processing times to mint the NFT staking hubs, the users may receive a different number of ULX coins after a transaction is made according to the market movement of the value of the ULX coins and stable coin.

This delay lasts under regular circumstances several minutes, however as a result of extraordinary events beyond our control, such as blockchain networks issues or token processing system issues, the delay can be prolonged to several hours.

In the event of a prolonged delay, the ULX exchange rate at which the stable coin transfer was made could be significantly different from the exchange rate on the time the NFT staking hub was minted.

Auto-Stake Function

All Staking Hub NFTs will have at the time of purchase default Auto-Stake Function set to ON. Holders of the NFTs have an option to set the Auto-Stake Function to OFF, but that is not optimal if the goal of a holder is to maximize their annual yield.

When your Staking Hub NFT is set to ON, rewards are added to the Total Stake amount, at 0.2% daily resulting in a compounding effect.

TWO MAIN BENEFITS OF HAVING AUTO-STAKE ON

1. HIGHER DAILY YIELD	**2. INCREASED $ CAP VALUE**
Get the full 0.2% daily rewards, going directly to increase your total stake.	Higher Total Stake, means higher $ Cap - you are again benefiting from higher rewards.
Increasing Exponentially	**Increasing Linearly**

When your Staking Hub NFT is set to OFF, rewards are calculated following these rules.

The Daily Reward of 0,2% is equally split:

    a. 0,1% - automatically gets burned (community/project contribution)
    b. 0,1% - goes into the daily reward calculation

Daily reward is calculated based on the $ Cap value and current ULX market price. Remember, $ Cap only increase when Auto-Stake is set to ON.

1. Understanding $ Cap Value

$ Cap Value simply indicates the USD denominated value limit used in a daily reward calculation for users with Auto-Stake setting on OFF.

Its base value is the same as of the base stake value and it increases linearly on the days with the Auto-Stake ON. Holders with Auto-Stake function set to ON are not capped in their daily rewards calculation - they enjoy a FULL 0.2% daily rewards.

DAILY REWARD CALCULATION FORMULA

AUTO-STAKE OFF

$$\frac{[\$ \text{ Cap value}] \times [0,1\%]}{[\text{Current ULX price}]}$$

2. Increasing $ Cap Value

On the day of the Staking HUB purchase $ Cap equals the Staking HUB value, but it then linearly increases by 0,2% daily each day the Auto-Stake setting is set to ON.

To increase the amount of Daily rewards, the $ Cap needs to be increased.

For that to happen, the Total stake needs to be increased, and for that, the Auto-Stake setting needs to be set to ON.

HIGHER TOTAL STAKE → **HIGHER USDT CAP** → **HIGHER DAILY REWARDS**
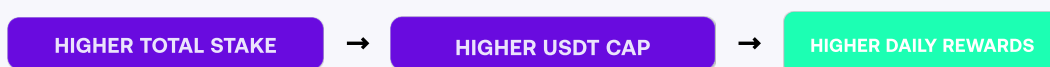
3. Total Stake Growth vs $ Cap Growth

Reminder: for Total Stake and $ Cap growth, the Auto-Stake setting has to be **set to ON**.

Notice the difference in growth. While Total Stake increases exponentially, USD Cap increases linearly.

INITIAL STATE	+0.2%	+0.2%	+0.2%	+0.2%
BASE STAKE / TOTAL STAKE / HUB VALUE / USDT CAP	BASE STAKE / TOTAL STAKE / HUB VALUE / USDT CAP	BASE STAKE / TOTAL STAKE / HUB VALUE / USDT CAP	BASE STAKE / TOTAL STAKE / HUB VALUE / USDT CAP	BASE STAKE / TOTAL STAKE / HUB VALUE / USDT CAP
DAY 0	DAY 1	DAY 2	DAY 3	DAY 4
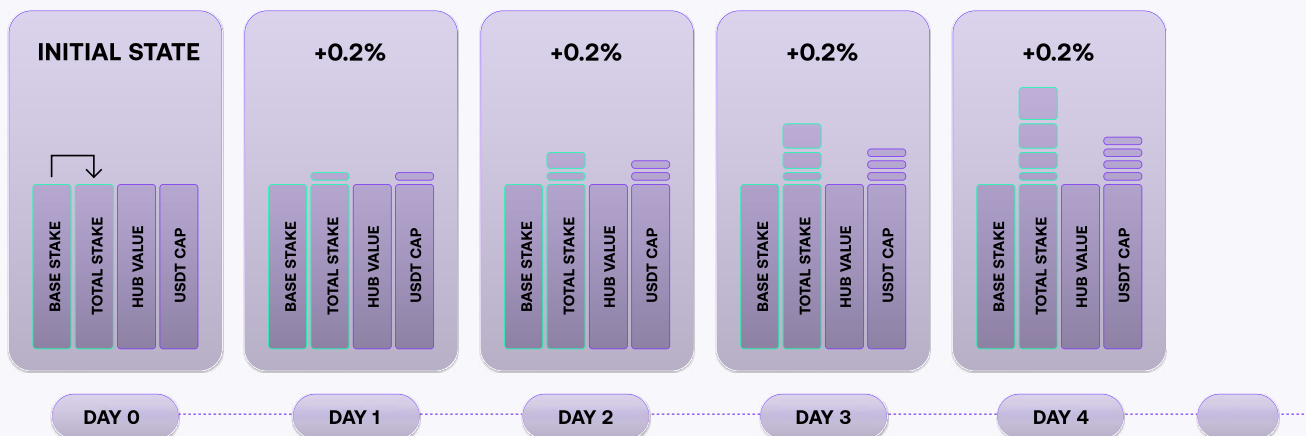
4. Auto-Stake Settings OFF, Rewards Calculation Example

We will assume the conditions in table one, to illustrate the practical daily reward allocation.

DAILY REWARD ALLOCATION - 0.2%

150.000 x 0.2%=
300 ULX

$ CAP value	5.000 USDT
ULX price	0.0333333 USDT
Total stake	150.000 ULX
Current ULX price	0.05 USDT

0.1%

0.1%

Automatically burned
150 ULX

Daily reward basis
150 ULX

Daily reward basis	150 ULX
Daily reward received by the user	-100 ULX
Result	50 ULX

CALCULATION
5.000 x 0.1% / 0.05 =
100 ULX

The MAX. daily **reward** that can be received

Additionally burned
50 ULX

User's ULX wallet
100 ULX

Daily reward
CALCULATION FORMULA

$$\frac{[\$ \text{ Cap value}] \times [0,1\%]}{[\text{Current ULX price}]}$$

Functional Utilities of ULX

Besides being the native coin of the Ultron blockchain, ULX will be the supportive native coin of the dApps developed by the Ultron Foundation. Accordingly, the growth of the coin will be driven by both the adoption of the blockchain and the growth of native dApps.

The following ULX use cases are anticipated:

1. Securing the Network: Validator Staking

The most important utility of the ULX coin is securing the network via the PoS system. Stakers can participate by setting up a validator node or delegating their stake to a validator and then locking their coins for a specified amount of time. Stakers earn rewards proportionally, according to the number of coins delegated and the duration of the lock-up, depending on the validator's uptime and stability.

2. Securing the Network: Fees

On the Ultron protocol, there are fees for transactions and smart contract interactions. These fees are tracked with ULX and are very low – but sufficient to make it extremely expensive for a malicious actor to carry out an attack.

3. Payments

Ultron's network executes thousands of transactions every second, keeping transaction cost inflation at scale and payment costs to a minimum – making Ultron a suitable choice for transactions.

4. Native dApps

ULX is the primary utility coin of the native dApps (e.g., to repay interest on a digital assets, liquidity mining, etc.). Once released, dApps will maximize the utility of ULX within the Ultron ecosystem and, with ecosystem growth, coin holders will be involved in future governance decisions on the Ultron blockchain.

5. Enhancing the Ecosystem

It is anticipated that Ultron's capital raised from the NFT Staking Hub sale will be used in the following areas:

- **Marketing expenses:**

  - Social Media networks management
  - Promoting native dApp services
  - PR and media paid campaigns
  - Content marketing
  - Community growth events

- **Operation expenses:**

  - Sales/operations
  - Legal
  - Additional expansion overseas
  - Prepare for contingencies

- **R&D: development of the applications for the ecosystem**

Rewards

The key potentiality offered by Ultron's ecosystem is the multi reward options available to community members:

#	DeFi Income Paths within Ultron	Goal
1	**Acquire Staking Hub NFT**	Get ULX coins through daily passive gain
2	**Delegate to a validator or set up your validator node**	Stake ULX to get more rewards
3	**Unlock staked ULX with xULX coins and use them within Ultron**	Unlock new liquidity from staked coins and maximize rewards with xULX
4	**Use ULX in DeFi dApp protocols**	Unlock DeFi earning potential with ULX
5	**Yield Farming of ULX in Liquidity Pool pairs**	Earn interest and maximize returns

Each option will be considered in the following sections.

Staking Hub Rewards

The Staking Hub NFT is an innovative digital asset growth instrument developed by the Ultron Foundation that enables users to receive daily APR returns in ULX coins. The majority of the ULX supply is destined for the Staking Hub rewards distribution.

Example: Basic Staking Hub NFT

Alice buys the Basic Staking Hub NFT for 100 USDT and receives a Base stake in ULX equivalent at the market price of 0.01 USDT with a 1.0 stake ratio:

NFT Base stake = 100 USDT / (0.01 USDT / 1.0) = 10000 ULX

The base stake generates an additional passive reward in ULX coins for 5 years, with an APR that is halved every year.

After 5 years with AUTO-STAKE ON, Alice receives 41 099 ULX, i.e., a total amount of rewards is 31 099 ULX or almost 311%. To enjoy maximum rewards, Alice selected the auto compounding option and, after 5 years from purchase, all the rewards are released and unlocked. If Alice does not withdraw any unlocked amounts, then in the first year, Alice will receive about 107.4% APY, the second year 91.3%, in the third year she receives 59.8%, the fourth 34.2%, and last year 18.3%.

Note that this reward is awarded daily, not annually, which provides better compounding returns.

Validator Reward Program

Users who run a validator node or delegate ULX to validators are rewarded in ULX. There are two options for staking in the Ultron protocol:

1. Become a validator:

The requirements to become a validator include:
- Minimum stake 1 million ULX
- Maximum validator size: not more than 10x the self-stake amount
- Meet service level agreement (SLA)

2. Join an existing pool as a delegator:

The requirements to become a delegator include:

- Minimum stake 1 ULX
- Assign 15% of delegator reward to host/validator

The reward distributed to validator and delegator stakers ranges from 5–13% APY, depending on the locking period and the total size of the stake. It will, to some extent, also vary based on the validator's stability on the network.

Validator and Delegator Penalties

Firstly, low stability of nodes can lead to network problems, and so a penalization system is implemented for non- effective validators.

Furthermore, if the validator behaves maliciously, its stake could be penalized, also known as "slashing". This penalty includes any proportion of the stake contributed by delegators aligned with this validator.

Should a validator or delegator wish to renege on their stake lock period and initiate an early extraction of that stake, they will face a loss of up to 50% of the percentage rate reward.

See Section 5.3 for the technical specifications of a minimum validator node.

Stake ULX to Receive xULX

The 'xAssets' are liquid, tokenized representations of staked (bonded) digital assets in the Ultron Swap DEX. They allow stakers to gain liquidity over their staked assets, enabling the locked value in staked assets to be utilized in all rewarding applications that will be developed on the Ultron blockchain.

Users acquire xULX synthetic assets for use within Ultron's DeFi ecosystem in proportion to the quantity of ULX staked. The source of staking rewards for xULX will be a part of the DEX commissions.

Users must follow these steps:
- Select staking preference and lock ULX (or wULX) to start earning rewards
- Receive xULX as a receipt of the staked amount
- Unlock staked funds as collateral – return xULX and receive initial ULX plus rewards
- Optionally use xULX tokens in Ultron dApps ecosystem to earn additional rewards (will be offered later after the mainnet and DEX launch)

wULX Token

The wULX (wrapped ULX) token is used as a reward in all native Ultron dApps and has the following properties:

- **Purpose**: wULX is an ERC20 token that represents ULX rewards, paid out in all native Ultron dApps.

- **ULX Peg**: wULX mimics the price of its underlying asset (ULX) in equal proportion, i.e., wULX:ULX is always pegged 1:1.

- **Fungibility**: wULX is fungible across all dApps, regardless of the underlying reward schema.

- **Ease of Redemption**: the redemption of wULX should be fully executed within a predetermined time period. Any holder should be able to redeem their wULX without loss and in a short period of time.

- **Wrapping / unwrapping**: wULX can be unwrapped into ULX on the Ultron swap at the exchange rate of 1:1; ULX coin can be wrapped into wULX at the same rate.

ULX Farming in Liquidity Provider Pairs

Yield Farming is an effective way to earn wULX rewards on Ultron dApps (via UltronSwap). Liquidity Provider (LP) Farms require that users stake two tokens. The user needs to add liquidity to get LP Tokens and then start staking them in a Farm in order to earn rewards and unlock ULX DeFi potential.

In Conclusion

Ultron has developed a robust ecosystem built on solid tokenomics.

As per the requirements of a solid tokenomics strategy detailed at the start, Ultron's ULX fits the following requirements:

1. The coin is integral to the ecosystem's function.

ULX is the native coin that must be staked within the system. Its release schedule places controls on the ecosystem.

2. The ecosystem protects itself from inflation.

A significant percentage of the ULX profits will be bought back by the Ultron Foundation as an anti-inflationary strategy.

3. The coins are mobile; i.e., it is easy to transfer wallet to wallet without any central control or intermediary.

ULX will be listed on major coin price websites and be tradable via cross-chain bridges to the biggest EVM-compatible blockchain networks.

4. The coin has multiple utilities; e.g., provides value when staked or held, can pay for fees, etc.

The family of coins ULX, wULX, and xULX support the full service of utilities.

5. Full transparency over coin functionality.

As per the White Paper and this declaration of the Tokenomics of the Ultron Foundation, the functionality of the coin has been clearly articulated.

6. Fees and transaction costs stay low.

Ultron's consensus protocol enables the Ultron L1 blockchain to deliver high throughput with fast transaction speeds and low

transaction costs. The transaction fees that are tracked with ULX and deliberately kept very low, but remain sufficient to mitigate against an attack.

7. No extremes of asymmetry in token distribution

The Staking Hub NFT has been carefully crafted to reduce asymmetry in distribution, with the reduced availability of the high-value assets. Similarly, the validator and delegator staking initiatives are designed to constrain any players from creating unreasonable levels of control.

Technical Overview

The Ultron blockchain implements the Ultron chain. This applies a protocol to mitigate against scalability issues and improves the processing time.

The Ultron chain is capable of processing both transactional information and associated metadata. This metadata storage enables historical information to be retrieved. The structure of this metadata is very similar in form to transactional data with the addition of properties such as inheritance.

The Ultron chain is effectively constantly building a picture of the connections between nodes, much like nearest-neighbor network analysis in biological systems.

Rather than having a single chain requiring global consensus in near real-time to add a new block, the Ultron blockchain has many threads which are later "woven" into the chain. This strategy avoids having to undertake a reorg, i.e., a reorganization of the main chain.

Figure 5.1 Blockchain structure vs. Directed Acyclic Graph structure

Blockchain

DAG
Directed Acyclic Graph
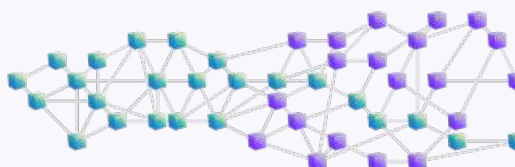
Graph theory, an established mathematical field, has been extended to be applied to DLT. The Ultron chain is created from a network, also known as a graph – a mathematical approach to represent a network. The mathematics underpinning graphs captures relationships between entities or objects, known as nodes. A graph is composed of sets of nodes, i.e., discrete points that are interconnected.

Ultron Chain and the Directed Acyclic Graph

Ultron blockchain is built on a DAG-based asynchronous Byzantine Fault Tolerant consensus algorithm (DAG-aBFT). This ensures that transactions are asynchronous, leaderless, and final. DAG-based protocols achieve consensus around a partially ordered record of transactions. This creates "width", which increases the throughput of the system, see Fig. 5.1. The blockchain is Byzantine Fault Tolerant in that it is able to function even when up to 1/3rd of the nodes are faulty – and that includes nodes with malicious behavior; see Section 5.2 The Lachesis Consensus Algorithm.

The Ultron blockchain is EVM compatible, supporting Solidity (and Vyper) to compile smart contract bytecode.

The blockchain is composed of 3 layers

1   Core

Interface

The interface layer deals with authorization and authentication. It manages account settings, and verifies wallet addresses and signatures of transactions.

Computation

The computation layer implements the computation protocol. It operates transactions and smart contracts, classifying operations as either valid or invalid. It passes data between the Control layer and Interface layer using the TCP/UDP protocol.

Control

The control layer coordinates node mapping and request coordination. It maps the results provided by the Computation layer to the Infrastructure layer; see 5.1.1 below.

Infrastructure

The infrastructure layer supports transaction, error control, and metadata registration.

2   Smart Contracts Logic Layer

Supports

- Smart contracts
- dApps

3   Application

Supports 3rd-party applications

- Payments
- Commerce
- Reputation
- NFTs
- etc.

The Core Layer

The Control layer, a component of the Core layer as described above, also manages data flow between networks. Event Block data is divided into packets for transfer and, therefore, must be reconstituted. The Control layer manages all aspects of such data

flow, including managing congestion, handling errors, and even terminating network connections when required.

The hash of the previous Event Blocks in the threads are stored at the Control layer. So too are the relationships between Event Blocks that are on the main chain and in related threads. The Control layer maps these Event Blocks to the Infrastructure layer.

It is this final layer, the Infrastructure, that handles dApp functioning. It stores data:

- **metadata** (e.g., historical data)

- **transaction data**

- **dApp & smart contract code**

It provides the procedures to transfer data – such as Event Block data; it is also responsible for error handling. The Infrastructure layer examines existing blocks and verifies these as error-free, or modifies them by re-calculating and comparing the checksum in each frame.

Smart Contracts Logic Layer

The Ultron smart contract layer provides access to middleware such as:

- **APIs**

- **Smart contract scripts**

- **Solidity**

- **Wallet middleware**

- **Payments service**

- **SDK**

to support the various dApps and smart contracts. This common framework layer manages accounts, OAuth 2.0 certification, and messages that are required for ecosystem access.

All messages passed across this layer are encrypted. To simplify Mobile App integration, this layer supports standard iOS and Android Push messages. Also, to accommodate compliance with payment standards, text message and email confirmations are supported.

The Ultron smart contract layer supports a client layer that integrates with:

- **dApp clients**

- **e-wallet clients**

- **native-web clients**

Both the e-wallet client and native-web client are exposed

externally to be accessible to other services.

The Ultron smart contract layer also supports the API layer, enabling interaction with modules that service smart contracts and transactions. This enables cross-chain bridging.

The Lachesis Consensus Algorithm

The Lachesis Consensus Algorithm (LCA) enables asynchronous Byzantine Fault Tolerance in the Ultron blockchain, which leverages an LPoS protocol.

Byzantine Fault Tolerance means that the network is able to achieve consensus despite the presence of malicious actors in the system. In fact, the nodes can successfully reach a consensus on a decision as long as less than 1/3rd of the nodes in the system are malicious.

The LCA creates a Lachesis DAG, which provides the immutable blockchain. The blockchain is composed of Event Blocks containing:

- **transactional data**

- **meta data**

- **smart contract code**

- **dApp code**

Unlike fully-validated chains such as Bitcoin and Ethereum, a new Event Block only connects with its parent Event Block.

The Event Block records:

- Metadata and transactional data

- Signature (address) of the Event Block generator

- Hash/es of the previous Event Block/s

The Ultron chain, together with the Lachesis Protocol Algorithm offers to solve the issue of scale by quickly processing the addition of new locks.

Both block creation and verification of transactions must be undertaken simultaneously across the blockchain to provide scale.

The Flag Table

In a sharded blockchain, it is vital that a record of the connections between Event Blocks are available. This is the function of the Flag Table. The Flag Table is supported by an Event Block that stores metadata recording:

- **The index of each Event Block**
- **Connections between each Clotho Blocks**

The Clotho Block acts as a controller block; it is the Event Block that supports the Flag Table. This function is always assigned to an Event Block in a majority chain. A Clotho Block must be connected to more than 2/3rds of a local set of Event Blocks to be assigned its role.
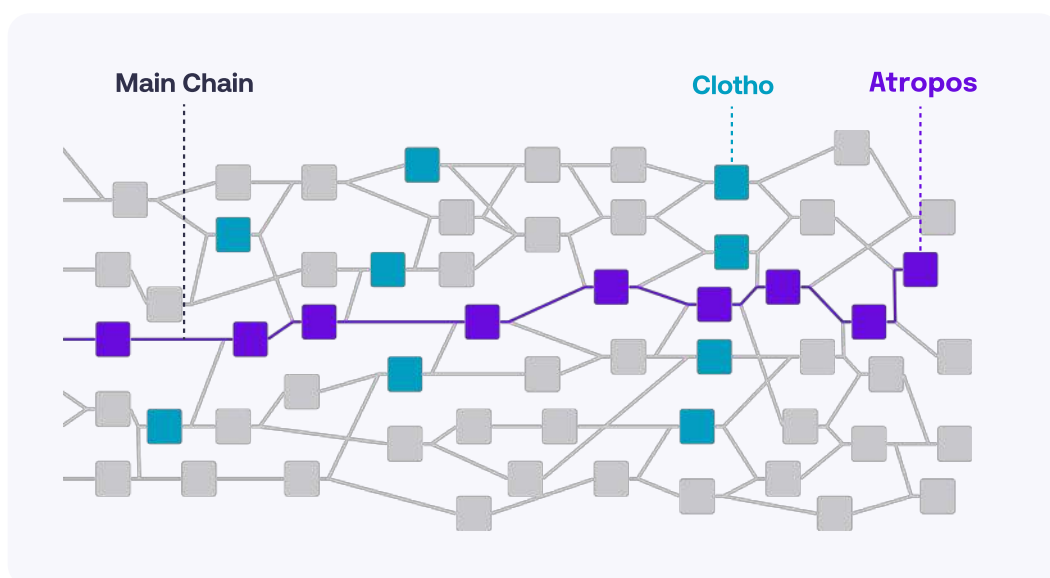
Figure 5.2 Main chain construction within a Lachesis DAG

The Clotho Block appoints consensus blocks, known as Atropos Blocks. The Atropos Blocks can be thought of as the "main chain" through the shards, and these are responsible for validating transactions, see Figure 5.2.

The Atropos Blocks coordinate to ensure that Event Blocks that occurred earlier in the sequence have priority in the main chain. So, while each node can create a new Event Block asynchronously, that Event Block's position on the main chain is dependent upon its time-stamp.

Constructing the Main Chain

Finalized blocks are wrapped up into "epochs". Each epoch is typically composed of a set number of blocks or a set period unless a malicious actor enters the system. If a "cheater" is identified in a block, the epoch is sealed.

Note that the blocks are not passed between nodes to construct the chain; rather, the Events are synced between nodes.
Events are categorized as confirmed or unconfirmed. New Events are "unconfirmed", while events from a few blocks back shift to confirmed status.

Technical Advantages of LCA/DAG Event Blocks and the Flag Table

The Flag Table allows the blockchain to accept malicious transactions and the events submitted by malicious nodes without having to subsequently revert block submissions from the main chain.

It is this agility that gives the Ultron blockchain both speed and security.

LCA/DAG solves the issue of:

1. Double Spending

Only the earliest transaction's Event Block can be validated. Also, while generated blocks are never modified or deleted, they do not have to be accepted on the main chain.

2. Large time and processing power to run a full node

Running a full Bitcoin requires around 200 gigabytes per month up and 20 gigabytes a month down. That is in addition to the 300+ gigabytes to download the entire history of the blockchain for verification the first time a node is started.

With disparate nodes, a node "family" is recorded and retrieved by

new nodes on the network – rather than the entire chain. As each new Event Block is connected to its parent's chain, a new node need only verify that chain.

3. Long finality times

Instead of the entire blockchain agreeing to a consensus via a queue, multiple shards act with a degree of independence.

That is not to say there is no agreement. Agreement, i.e., consensus, is vital and generates the main chain as coordinated by Consensus Blocks, as described above.

Nodes pass messages and vote to agree consensus that recent Events occurred and are considered valid. The same Event will be included in multiple such elections, hence building consensus. Each node verifies at least two former transactions to initiate the confirmation of their transactions. As a consequence, the hashing power required to validate the procedure decreases.

The protocol also provides certain security benefits; **see Section 3.2.**

Validator Node Minimum Requirements

Validator nodes are vital to the Ultron network's operation. Validators run a full node and participate in consensus to enhance security and create new blocks.

Community members who wish to perform the service of providing a validator node must meet the SLA requirements. In brief, these include:

- **Minimum stake:** 1,000,000 ULX

- **Maximum validator size:** delegators may delegate up to 10x the validator's self-stake amount

- **OS:** Ubuntu Server 20.04 LTS (64-bit) or similar

- **Minimum hardware requirements:**

  - AWS EC2 m5.xlarge with 4 vCPUs (3.1 GHz)

  - 2 TB of Amazon EBS General Purpose SSD (gp2) storage (or equivalent)

To understand the validator rewards, see Section 4.5 Run a Validator Node or Delegate ULX to Validators.

Market Status

The interest in cryptocurrencies, DeFi solutions, and NFTs has never been so high. Constant and growing attention has been given to this industry by the mainstream media, major institutions, and regulatory authorities. Cryptocurrencies are also being heavily used to finance multiple charities, as demonstrated in the Russia-Ukrainian crisis. Consider that the total market capitalization of the whole crypto market reached USD 3 trillion at the end of 2021, and there is currently a daily transaction volume of more than 120 billion USD, according to coinmarketcap.com. Bitcoin alone reached an all-time high of over USD 68,000 and, by itself, a market cap of more than USD 1.25 trillion.

Individual interest in crypto has also skyrocketed, not only among investors but also in popular culture. Yahoo Finance is predicting that by the end of 2022, there will be more than 1 billion crypto users.

The WEF predicted that blockchain and distributed ledger technologies would create up to 10% of the world GDP by 2022. According to Allied Markets, it is expected that the cryptocurrency market will more than triple by 2030, with an annual growth rate of 12.8% between 2021 and 2030. Other growth rate predictions are even more optimistic, estimating that by 2030 over 5 billion people will use cryptocurrencies for daily payments.

The regulation of crypto assets is also reaching a stepping stone, with an example like the country of El-Salvador, which adopted Bitcoin as a legal tender in late 2021. Another example is the City of Lugano in Switzerland, which recently started to accept cryptocurrency payments for administrative, tax, and bureaucratic services widely, following the example of Zug a few years ago.

DeFi Market Overview

More specifically, the TVL, or total value locked up in the liquidity pool, has reached approximately 100 billion USD. Nevertheless, these amounts are a tiny fraction of the global financial service industry, whose value is estimated to be north of 20 trillion USD. The growth potential in DeFi in the long term is comparable to the value of Amazon and Google in the late nineties.

Multiple DeFi solutions beat the market's volatility, as they persistently provide significantly higher returns than leaving the funds sitting in the retail banks' accounts that pay around 0.25% APY.

NFT Market Overview

It has been estimated that the NFT market was valued somewhere between 16 and 40 billion USD. In 2021 alone, the NFT market experienced tremendous exponential growth, calculated at more than 210 times the value of 2020. Every week more than 15 million USD of NFT are being sold. On average, NFT prices are below 200 USD, but specific, very successful collections are traded daily for

hundreds to thousands of ETH, with the first purely digital artwork (NFT) ever offered at Christie's, "The First 5000 Days" by Mike Winkelmann aka Beeple selling for more than 42000 ETH/$69.3 million.

Increasingly valuable, recent use case of NFTs can be seen in the metaverse and GameFi applications, where the NFTs are used as game avatars, upgradeable items, in-game assets, or virtual land and virtual properties. For example, last November, six thousand virtual "square feet" of the online world Dencentraland were sold for a record-breaking 2.4 million USD.

The concept behind NFT was created in 2014, but only since last year has the broad population started to understand its real value as digital proof of ownership of assets. It is not a secret that NFTs are being investigated by many large corporations and beginning to be incorporated into their business models and operations.

All these factors indicate that the demand for innovative services and solutions like the one that the Ultron Foundation proposes here will continue to grow.

))) Ultron

Roadmap

Year 2022 & Forward

Pre-Launch

Staking hub
NFT introduction

))) 1.6.2022

Mainnet
launched

10K*

ULX Scan

20K*

Ultron Swap

100K*

Credit card
online purchases

60K*

Ivana Tattoo Art
NFT Pre-Sale

40K*

World's biggest
blockchain
conference

30K*

Cross-chain
bridges

150K*

mPOS

200K*

Ivana Tattoo
Art NFT

250K*

Validator
program

300K*

Lottoday
(Stage 1)

700K*

RNBW NFT
Marketplace

600K*

Developers
incentive program

ℝ · S 500K*

Re:Shape
(Stage 1)

400K*

FlipMe Card

800K*

Ballrs
Metaverse
(Stage 1)

900K*

Re:Shape
(Stage 2)

1M*

Governance
-DAO-

1.1M*

Lending &
Borrowing

2.5M*

Re:Shape
(Stage 3)

2M*

Lottoday
(Stage 2)

1.5M*

Ballrs Metaverse
(Stage 2)

1.25M*

Launchpad

5M*

100+ dAPPS

10M*

Re:Shape
(Stage 4)

50M*

1000+ dAPPS

Re:Shape
Social media
platform
100M*

Evolution

The Ultron project is constantly evolving, which is reflected in the project roadmap. Ultron is fully committed to meeting the deadlines defined in this roadmap and engaging the critical mass of users to sustain the long-term future of the project.

Nevertheless, it will continuously monitor the changes occurring in the financial markets, especially in the crypto regulation, geopolitical sphere, and significant macroeconomic indicators, and adapt its strategy accordingly.

Visit ultron.foundation for the most updated ROADMAP version and stay up to date with the latest developments.