Universal Decentralized Asset Platform (UDAP)

UDAP Foundation

UDAP, a Blockchain Middleware for Tokening Everything

Summary

With the fundamental “layer one” in the Ethereum ecosystem now established, blockchain development is entering an exciting new phase of “Tokenize Everything”. However, there is still a huge gap between blockchain applications and blockchain infrastructures. Current blockchain infrastructure is missing an important software layer that supports scalability, interoperability and functionality. This layer operates on top of existing blockchains, integrates technologies like decentralized storage and messaging, and often offers developer-friendly services and solutions to some common problems, for example, asset lifecycle management. Without this layer, it is difficult for developers to build application that can match Internet applications in terms of scalability, performance, and user experience. This layer is what UDAP focuses on.

UDAP, a Universal Decentralized Asset Platform, is a blockchain middleware that provides Restful APIs and an ‘Asset Wallet’ for application developers to create powerful blockchain based applications without writing any smart contracts. It’s a ‘layer two’ solution for non-fungible assets that simplify and accelerate blockchain application development.

When using an "**Asset Oriented Programming**" model, app developers take advantage of the traditional Internet application architecture and use UDAP as a layer of

1. asset tokenization;
2. transaction notarization; and
3. contract adjudication in case of dispute.

Features and Benefits

For app developers:

1. Valuable decentralized features that do not require heavy investment in blockchain technologies.

   UDAP defines convenient APIs for traditional vertical applications. This allows them to integrate with blockchians. An added benefit to application developers is that a deep understanding of blockchain and decentralization technologies is not required.

2. Fast, cheap and secure integration with public blockchains, without specific lock-in.

UDAP implements **State Channel** technology to solve some of the most challenging issues with developing and running Blockchain-based applications. State Channel technology provides high scalability, low cost, privacy protection and immediate responsive.

3. Application Wallet with in-app currency and Smart Contracts that provide asset life cycle management, trading (including some common trading models like buy and sell, rental, auction, pledge, etc.) and search capability.

   UDAP has a set of smart contracts templates (initially based on Ethereum) that are configured by applications before deployment and at runtime. Early testing shows that this automatic templating system can cover 90% of regular application use cases.

For public chains:

1. Designed for developers who are building new applications.
2. Facilitates easier integration with "legacy" Internet applications.
3. Easier support and maintenance interface for developers.

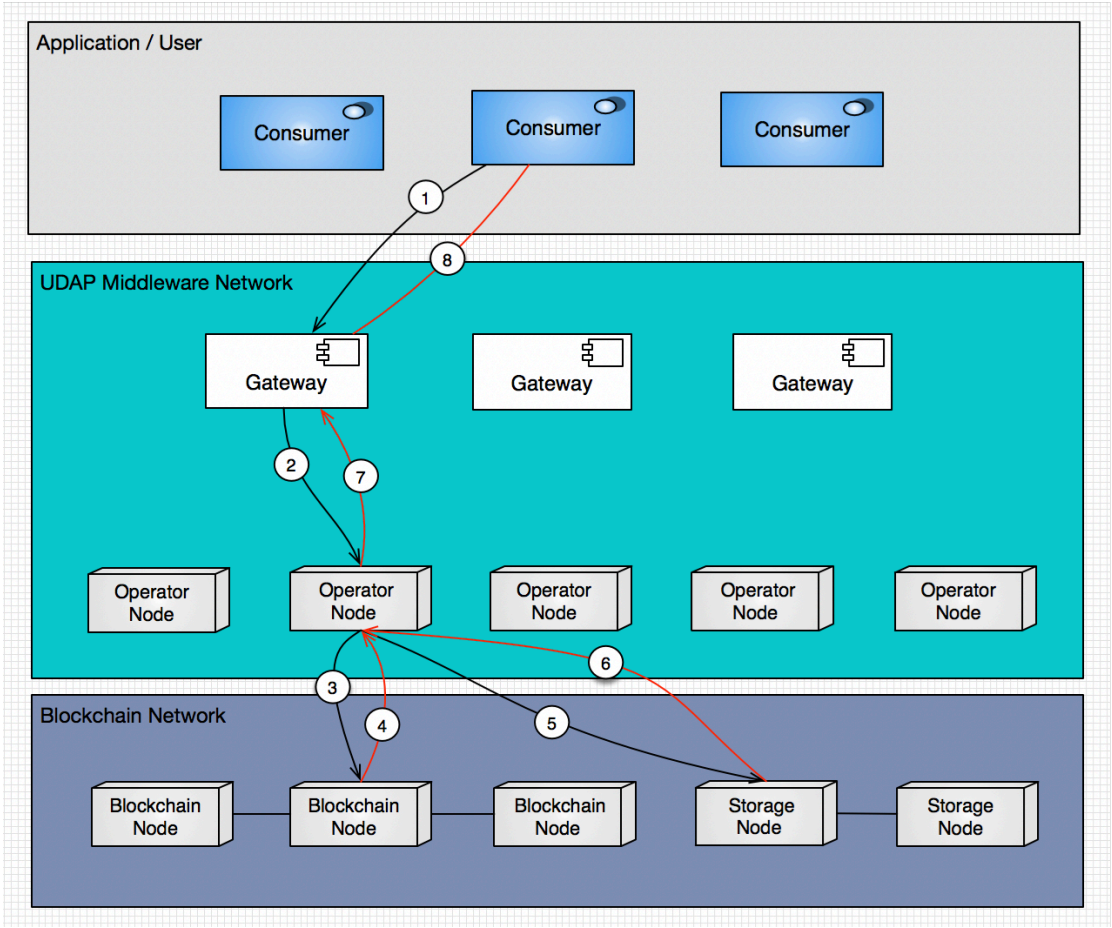
For end users:

1. The UDAP wallet, named “Harvest”, because of its cultivation, nurturing and growth capabilities, plays a key role in the interaction between applications and users. For example, users can use the Harvest Wallet to purchase a concert ticket or check into a hotel room or other facility.
2. Users can enjoy a full internet experience using UDAP’s State Channel technologies.

A Decentralized Middleware Network

UDAP proposes a decentralized middleware network where non-fungible assets can be defined, registered, verified, tracked and traded using an ERC721-compatible on-chain asset model. Complex operations like auction and search are routed to off-chain service nodes, however, transactions are still anchored by on-chain consensus algorithms.

The following diagram is an architecture overview of the proposed UDAP platform. It defines three layers with corresponding logical nodes as well as a simple use case about retrieving assets stored on the blockchain and decentralized storage. This layered architecture creates a separation of functionality and enforces reuse. Application developers no longer need to code with low-level web3 APIs and specific storage and messaging APIs. The middleware provides stable asset-oriented APIs and off-chain solutions (like state channel and off-chain search) that expand transaction capacity and enables immediate finality.



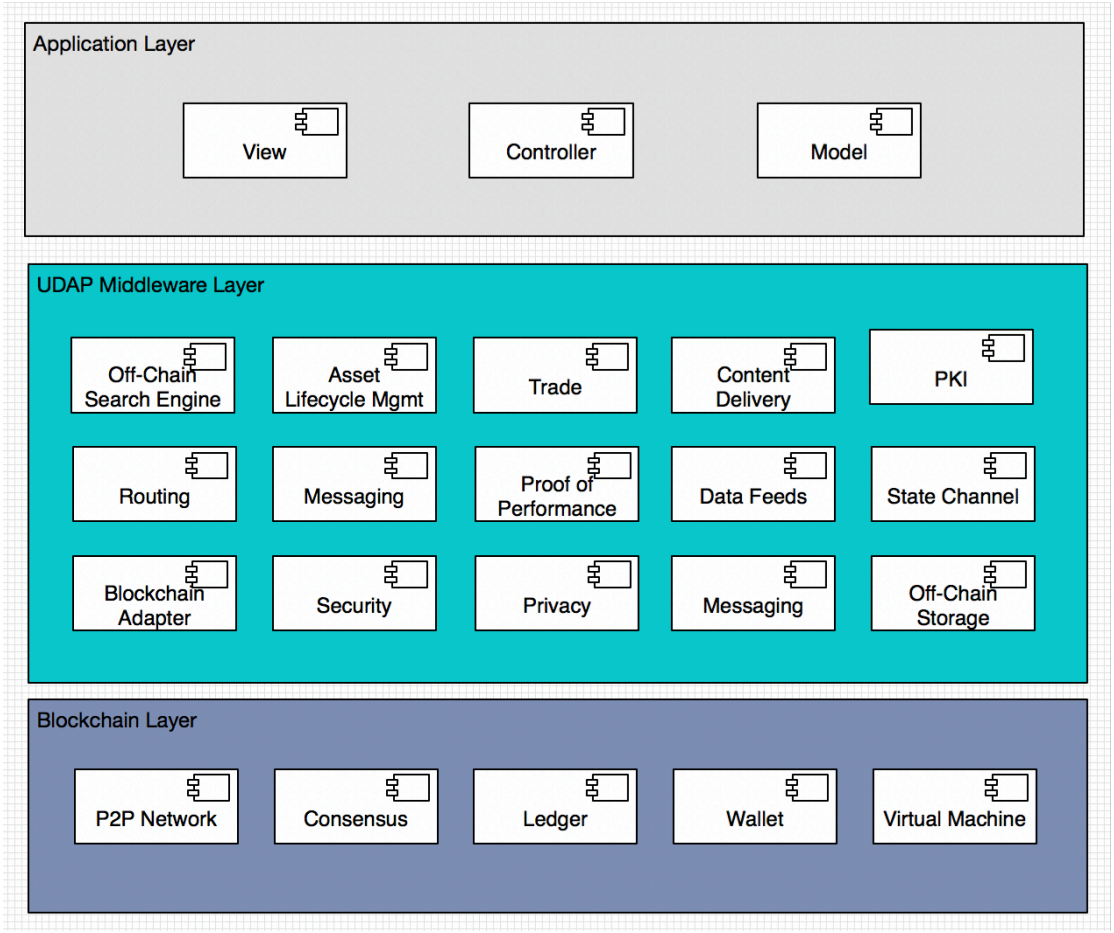
The UDAP middleware network introduces two new node types. The first is Gateway Node, which provides routing and load balancing services. Another is Service Operation Node, which provides off-chain computation and integration to blockchains, storage, and messaging. Nodes are selected and incentivized to service the consumers (application) through a Proof-Of-Performance-Stake **(POPS)** consensus algorithm.

Hosts providing asset services need to deposit a small amount of locked-in tokens and need to broadcast their identities to the UDAP blockchain. UDAP chooses the node serving the service based on the POPS consensus algorithm:

1. Operator full node stake UPX volume and time.
2. Average responding time
3. Node online time
4. Last service time
5. Node health and load

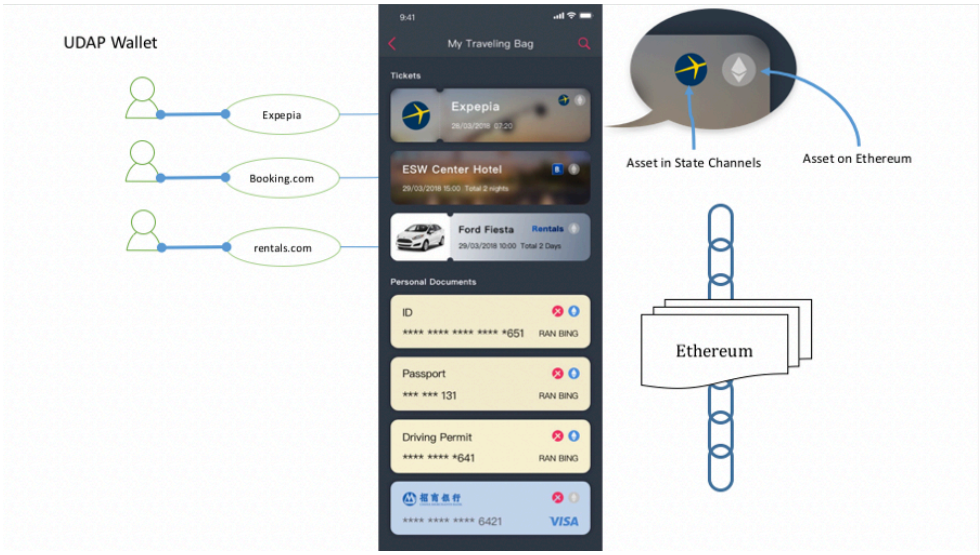
UDAP Middleware Components

This middleware layer offers off-chain search, state channel components, secure content delivery, common trading models and asset lifecycle management services (as illustrated below).



Harvest Wallet

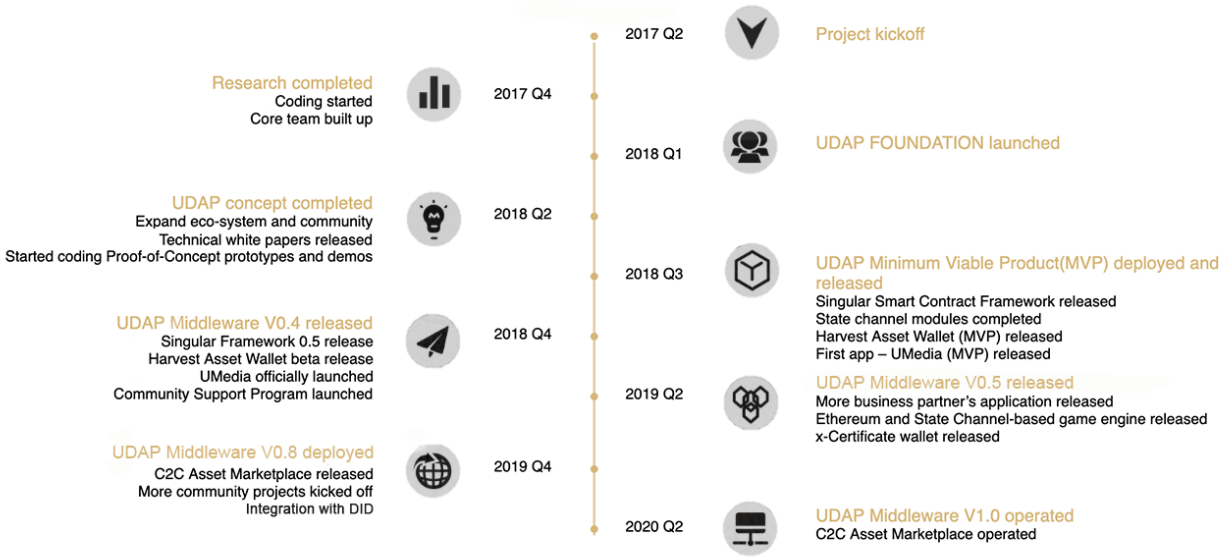
UDAP's Harvest Wallet is a very important part of the UDAP platform, it's a personal safe box on one's mobile phone, it can contain any asset including certificate key documents, diamonds, or other cryptocurrencies and crytotokens. It's very easy to manage their own assets on blockchain or state channels.



Harvest Wallet is an extensible plug-in architecture. It can support a large number of

third-party apps that generate a wide range of assets. Currently, the Harvest Wallet MVP version is released and supports memo, invoice and business name cards. More applications can be plug into the Harvest Wallet, it lets individuals create own assets easily.

UDAP Roadmap



UDAP Token Economy

UDAP token (UPX) is native to the UDAP platform, it's the token to stake or pay for the UDAP services. UPX can be bought from exchanges or run on Operator Node to get rewarded.

1. **Stake UPX token to get services from UDAP.**
   The developer should stake enough UPX in the developer STAKE account to use UDAP services. The developer doesn't need to stake other tokens to blockchains like EOS, UDAP will stake EOS tokens for the developers. The stake UPX is calculated based on the number of active users each month. Every address created or uses UDAP API is considered as 1 active user at that month. 200UPX per each active user is required to stake in the developer STAKE account to use UDAP services.

2. **Pay UDAP service fee by UPX.**
   UDAP middleware run on top of blockchains, some blockchains charges fees, or requires additional storage like IPFS, UDAP withholds the gas and/or storage fee plus 10% of services fee from developer's SERVICE account. For Example, Ethereum charges GAS fee, the GAS fee is finalized once the transaction completed. Developer can pay either UPX (Based on the market rate) or ETH, EOS, etc., depends on what blockchain used. UDAP charges minimal 5UPX per transactions, however, all transaction on State Channel is free of gas and UDAP

service fee.

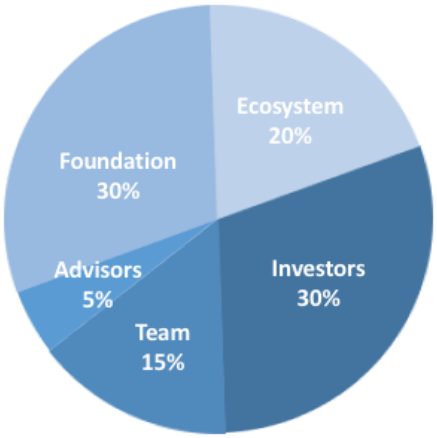
3. **Pay UDAP transaction fee by UPX**
   UDAP charges 0.1% of the transaction fee based on the total amount of each transaction. The transaction fee can be paid by UPX or blockchain tokens. UDAP charges minimal 5UPX per transactions, however, all transaction on State Channel are totally free.

4. **Monthly service fee**
   To ease developer manage their costs, UDAP provide a unlimited monthly services fee. Developer prepays 500,000UPX and enjoy unlimited number of UDAP services each month. That's good for applications with higher volume, but lower costs.

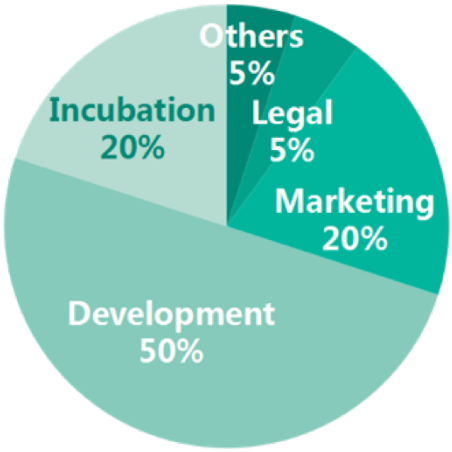
Token Distribution and Token Allocation

UPX tokens are implemented using the Ethereum ERC20 standard. The Total Supply is 10,000,000,000 UPX tokens.

Token Distribution



Token Allocation



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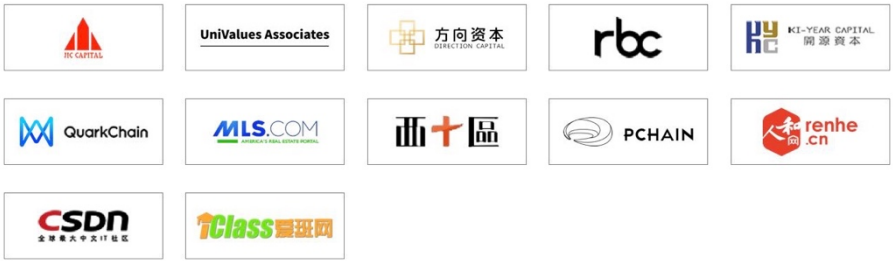

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