

Tradershub Technical Whitepaper

28.01.2018 v1.1



TRADERSHUB.IO



Milestones

EXCHANGE SYSTEMS NEED TO BE ENGINEERED FROM THE GROUND UP WITH SECURITY, EFFICIENCY, SPEED, AND SCALABILITY IN MIND. THIS OFTEN SLOWS DOWN THE INITIAL DEVELOPMENT, BUT IS CRITICAL FOR LONG-TERM SUCCESS.

Milestone 1 (\$3M)

All-in-one dashboard

Monitor and manage all your cryptocurrencies across multiple exchanges in one place (via API).

Transparent insights

Quickly check price charts, orders, and market details for every coin. Effortlessly browse trading ideas and news without needing to switch context.

Performance portfolio

Keep track of all your cryptocurrency investments in one place.

Enhanced Account Security

2FA, Encrypted email, IP and location smart monitoring, customizable limits and timeframes, ...

Milestone 2 (\$10M)

One-click execution

Say goodbye to the pain of partially executed orders and slippage. Get your orders filled in 1 click, optimize your trading process and reduce your trading costs.

Consolidated withdrawal process

Withdraw crypto from multiple exchanges to your wallet of choice with a single command.

Alerts & monitoring

Control your assets with advanced alerts. Set & receive real-time notifications via SMS, e-mail or receive push notifications on your mobile device and browser.

Demo Trading Account System

Access risk-free 30-day demo trading that works exactly like real trading (except your balance is fictional). Easily switch between demo and real trading from your dashboard.

Milestone 3 (\$12M)

Social network

Benefit from the collective wisdom of our community or earn token bonuses based on your trading activity. Exchange ideas, strategies, opinions and insights.

Ghost trading

Copy and follow moves of the top performing traders & prosper with trading even if you're not the best connoisseur of crypto markets.

Creator subscription system

Tools for creators to run a subscription content service, as well as ways for creators to build relationships and provide exclusive experiences to their subscribers facilitated by the use of THT.

User created Ad system

Help business, groups and individuals reach out to the social network utilizing THT.

AI-powered trading

AI pricing source based on algorithms ensures the most efficient bid-offer matching across crypto exchanges and helps you make better trading decisions.

User generated smart contracts

Create an interface for users to establish Ethereum smart contracts from our platform. Allows users to create complex transparent instruments for trading based on consensus, voting via tokens invested into contract.





Platform

APPLICATION LAYER

The application layer will provide users access to multi exchange trading, advanced charting, technical analysis tools portfolio management, social networking and other features of Tradershub through a seamless UX offered through an HTML web platform, Android and iOS mobile apps while also exposing features via an API and 3rd party integrations, striving to facilitate an interconnected trading ecosystem.

- The presentation layer includes but not limited to the following:
- charting features,
- technical analysis tools,
- portfolio overview and management
- arbitrage opportunity visualizer,
- custom made indicators,
- trading scripts,
- quote screens with live thumbnail tick charts,
- multi window and monitor widgets for advanced traders,
- real time alert support,
- social networking,
- copy trading,
- content creation and management,
- and more...

COMMUNICATION LAYER

On the front end the Communication layer is a system of processes which handle the collecting of internal and external data, preparation, analysis, packaging and distribution of data in a usable form to users.

APIs (Application Programming Interfaces) are the communication layer between web and mobile applications and the rest of the system. Web and mobile applications do not contain much data, logic and calculations on their own, relying mostly on the processed data retrieved through RESTful and APIs and websockets.

At the back end the layer is core to connecting exchanges via APIs to Tradershub, executing actions and harvesting data.

Data will be processed by removing noise and correction of data inconsistencies, aggregation, redundant data elimination and clustering, storing datasets by merging data from multiple sources.

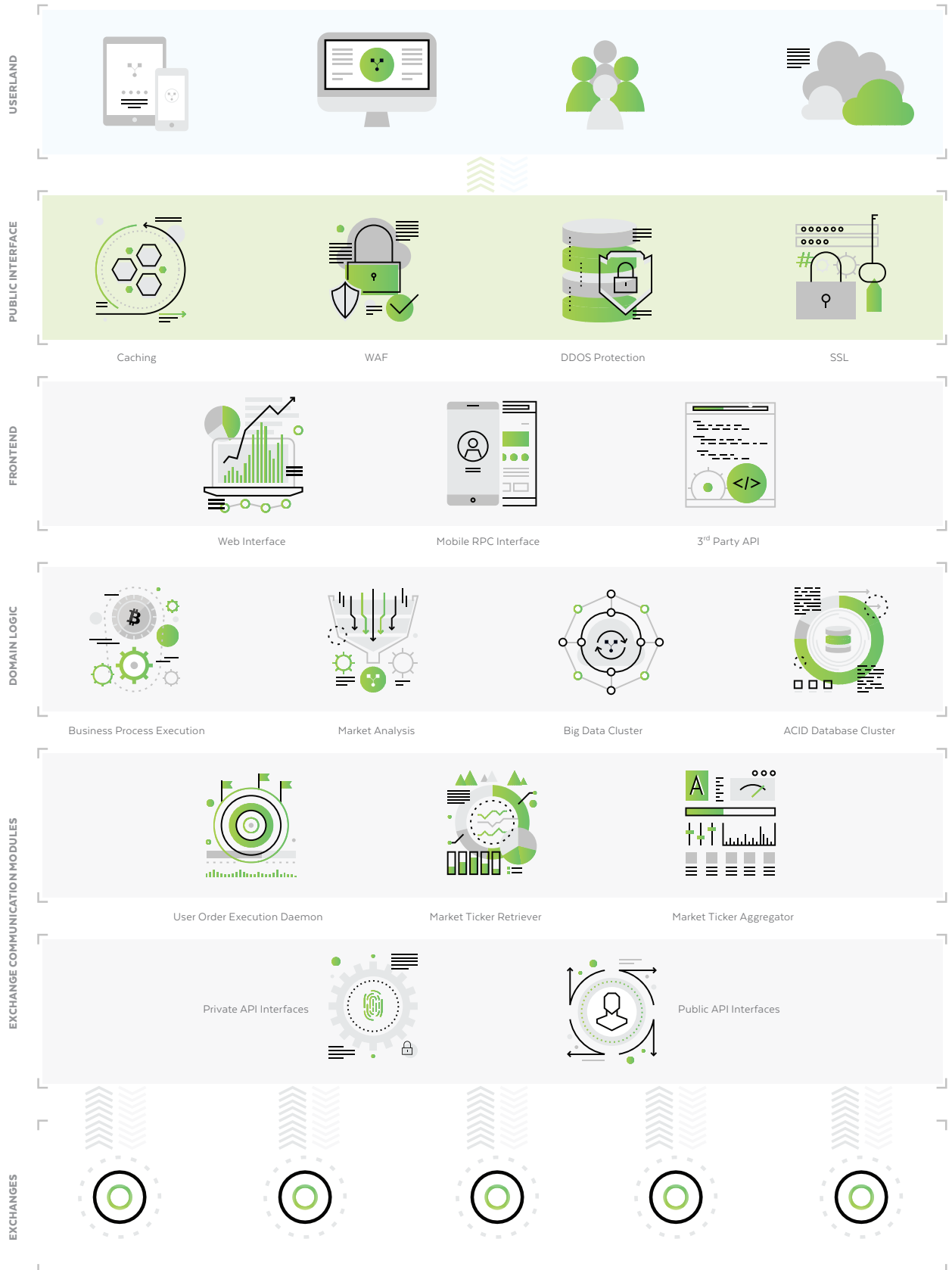
OLTP and OLAP data processing information systems will be used where applicable.

OLTP (On-line Transaction Processing) is a class of information systems that facilitate and manage transaction-oriented applications.

OLAP (On-line Analytical Processing) is part of the broader category of business intelligence, which also encompasses relational database, report writing and data mining.

EXECUTION LAYER

The execution layer is a set of features which facilitate trade executions, withdrawals and other applicable asynchronous functionality through a managed queue system.





Applications for user interaction

WEB BASED INTERFACE

Primarily aimed at workstation usage, the web interface takes advantage of state of the art in javascript single page application developments and presents a modular UI, enabling advanced traders to expand their trading workspace over several monitors.

MOBILE APPLICATIONS FOR CLIENTS

Support for the Android (versions 5.0 and later) and iOS (versions 9 and later) platforms via native apps provides users with a simplified yet fully functional interface with alert notifications tailored for on the go consumption. The platform will be supported on phones and tables, with tablets offering a richer experience as we utilize their screen fully.

API

For advanced users and 3rd party integration a RESTful interfaces will enable additional functionality and encourage community driven development and sharing as part of our social aspect of Tradershub.





Connecting with exchanges

CRYPTO EXCHANGE APIS

Classic centralized crypto exchanges such as Gdax, Bitstamp, Bitfinex, Bittrex, ... offer application programming interface (API) allowing their clients to access and control their accounts, using custom written software and platforms such as Tradershub.

Generally exchanges provide public and private account based APIs. Using these APIs we will create a trading platform with a hands-off approach, where all user's funds remain stored at their respective exchanges without any funds being transferred to Tradershub at any point of the process.

PUBLIC APIS

The public APIs generally do not require authentication and are used for functionality such as:

Tickers: data for currency pairs

Hourly tickers: a dictionary like the ticker call, with the calculated values being from within an hour.

Order Book: a dictionary with „bids“ and „asks“. Each is a list of open orders and each order is represented as a list holding the price and the amount.

History / List of transactions: a list of transactions

Trading pairs information

PRIVATE APIS

Private API calls require authentication. For a successful authentication Tradershub needs to provide the users API key, a signature and various parameters

A user generates a private API key at the exchange for instance by going to „Account“, „Security“ and then „API Access“. The user sets permissions which can include simple portfolio access to making withdrawals and executing trades and clicks „Generate key“.

Private APIs provide functionality such as:

- Account balance
- User's transactions
- User's open orders
- User's order status
- Cancel order
- Cancel all orders
- Buy limit order
- Buy market order
- Sell limit order
- Sell market order
- Withdrawal requests / status
- Deposit address





Development segmentation overview

SOCIAL FEATURE OVERVIEW

- Feeds
- Trading performance
- Reputation system
- Constructive behaviour incentives with THT rewards
- Leaderboards
- Gamification incentives
- Copy Trading
- Content Creation
- Commenting
- Like
- Following (User to User, User to Group, User to Content)
- Cross device sync
- Mentioning
- Tags
- Dashboard
- Activities
- Notifications
- User Groups
- Directory (People, Groups, Copy Traders)
- Mobile Ready Interface
- Full Text Search
- User Profiles
- User Approval System

TRADING FEATURE OVERVIEW

- Alerts
- Ticker
- News
- Compare multiple charts
- Markets
- Indicators such as Bollinger Bands, Money Flow, ...
- Connected exchange accounts and permissions
- Balances across exchanges
- Orders, open orders, history, placing, ...
- Data aggregation and normalization
- Development stages

THE TRADERSHUB PLATFORM WILL BE DEVELOPED IN INCREMENTAL STAGES AND BASED ON MILESTONE GOALS ACHIEVED.

In **stage 1**, we will create the all-in-one based dashboard and trading functionality, empowering users with access

to consolidated crypto trading on all major supported exchanges. A performance portfolio and transparent insights with charts, news and trading ideas. Based on milestones various degrees of enhanced account security will be implemented, such as 2FA, encrypted email, IP and location smart monitoring, customizable limits and timeframes,...

In **stage 2**, we will add one-click execution, consolidated withdrawals, a demo trading system, alerts and monitoring.

In **stage 3**, we will expand the platform into a full social network with copy trading support, content creation, reputation system, gamification and features noted in the segmentation overview.

In **stage 4**, we will be looking into using THT to facilitate supporting decentralized exchanges as they evolve.

In **stage 5**, support for new smart contract based financial instruments as the blockchain ecosystem evolves and transaction speeds increased in speed and lower in price.

CONTINUOUS INTEGRATION

Throughout the development cycles an integration task force will be tasked with expanding exchange communication modules and keeping up to date with exchange API updates.

CLOUD SERVER & DATA STORAGE

The application, communication and execution layers will be hosted on the Google Compute Engine with a mix of Big Data and ACID compliant database technologies for file and data storage for various segments of the social, data aggregation and trading execution aspects of the platform. Implementation details and specifics will be decided via extensive benchmarking and testing during development and as both Tradershub adoption and the crypto trading ecosystem grow.

GCE hosting provides us with a future-proof infrastructure, intrusion detection, security scanning, secure global network, data encryption, secured service APIs and authenticated access and more.





Security

USER ACCOUNT SECURITY

To provide a secure platform in the crypto currency space, security is paramount. We cannot share all of our defensive measures, but some are as follows.

- Request will be processed through a verified and secure SSL. This includes all traffic, including the web interface and mobile devices.
- Granular Two-Factor Authentication (2FA) utilizing TOTP and U2F Authentication.
- User data will be encrypted with AES 256-bit encryption and sensitive user data will never be returned to the client.
- IP Address Whitelist. Allow user to limit account access by IP address.
- Login history overview provided to user.
- Notify user on login via email.
- Withdrawal address whitelisting
- Withdrawal enabling toggling with automatic time window lockout
- Setup encryption for email services
- Option to lock withdrawals for 24 hours when a new IP address is used
- Failed login attempts will result in both an account lockout and IP ban for an extended period of time.
- Login attempts will be logged and timestamped by IP address and user agent.
- Two-factor authentication will be required to enable trading or withdrawing with a user's account.
- Geolocation aware heuristic algorithms monitor user's activity and lock accounts when necessary.
- API keys will be stored with strong encryption and will never be returned to the client.
- API Keys will never be stored or displayed anywhere in an unencrypted format. Requests to API exchanges will be made via our Exchange Communication Modules.
- Exchanges enable granular permission control over user's API keys which will limit the capabilities they have to interact with the Tradershub platform as users see fit.
- Tradershub will not handle user's funds directly. All funds will remain stored in the exchange's wallets.
- DDoS protection will be enabled.

GOOGLE CLOUD ENGINE

Used by organizations worldwide, from large enterprises and retailers with hundreds of thousands of users to fast-growing startups, Cloud Platform includes offerings in compute, storage, networking and big data. The Google security model is an end-to-end process, built on over 15 years of experience focused on keeping customers safe on Google applications like Gmail, Search and other Apps. With Google Cloud Platform the Tradershub platform takes advantage of the same security model.

GOOGLE INFRASTRUCTURE SECURITY LAYERS



Google Infrastructure Security Layers: The various layers of security starting from hardware infrastructure at the bottom layer up to operational security at the top layer.
Source: <https://cloud.google.com/security/security-design/>

