# MMSolutions: Centralised Market Making with Compliance

Introduction

In the fast-paced world of cryptocurrency trading, the demand for solutions that enhance liquidity, stability, and transparency is critical. MMSolutions stands at the forefront of this innovation, revolutionizing market making with sophisticated automation and decentralized control. This technical whitepaper explores the core technologies, methodologies, and implementations underpinning MMSolutions, setting new standards in digital trading.

At its core, MMSolutions utilizes advanced blockchain technology, smart contracts, and AI algorithms for dynamic market operations. This document outlines the sophisticated system architecture, data models, and API integration that ensure seamless connectivity across cryptocurrency exchanges. By employing technologies like Docker and Hummingbot, MMSolutions offers scalable and adaptable solutions for any market condition. Through detailed explanations and visual aids, we illustrate how MMSolutions empowers project owners and enhances market efficiency and security. Join us as we delve into MMSolutions' technical framework, operational mechanics, and its alignment with blockchain's decentralized ethos to democratize trading and secure a competitive edge in cryptocurrency markets.
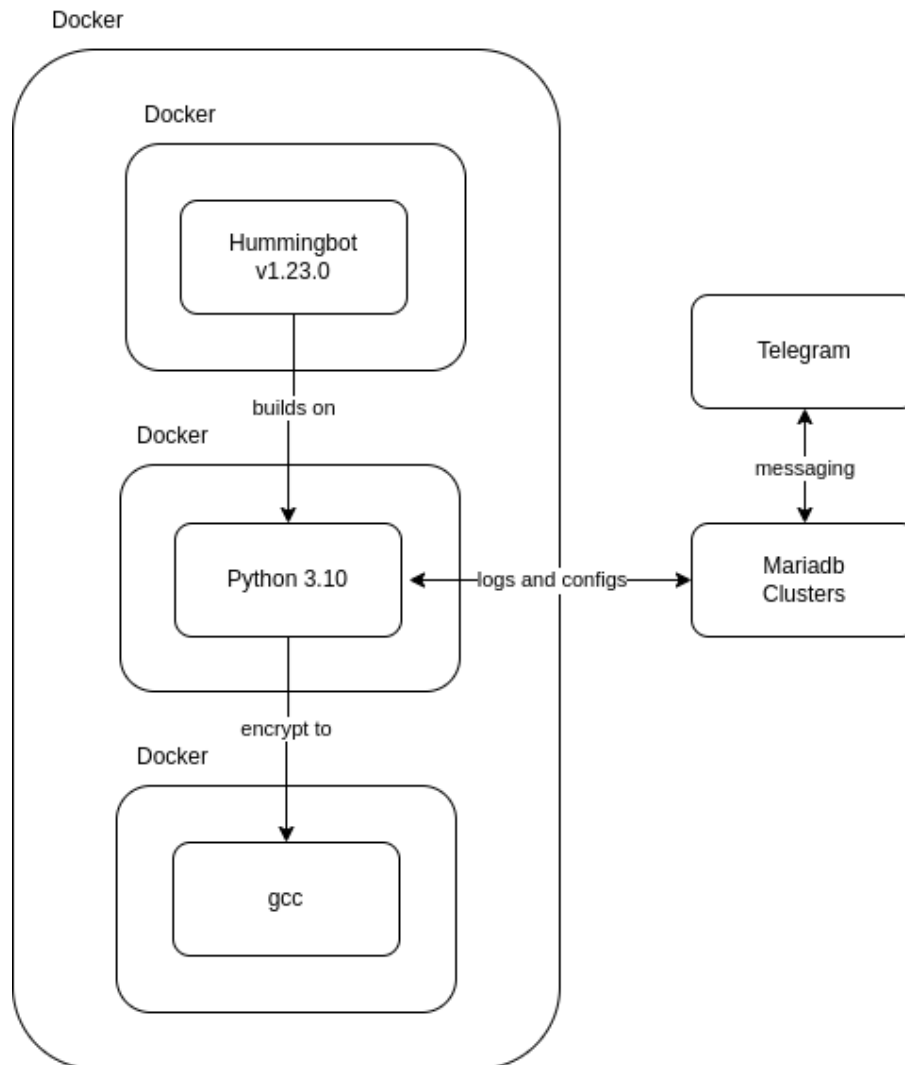
Software specifications

Container
"Base / Scratch Docker approach": Mentioned in docker.com, a scratch is a minimum docker image which is essential for building a base image. Unlike the commonly used "Docker compose" method, which is a technique of building docker on top of third party docker. The advantage of building "Base Docker" is to get rid of the limitations of version control of other teams. It allows us to integrate the latest and advanced systems and at the same time allows us to respond fast in any security or technical issue related to our technology stack. The details of "Base / Scratch Docker approach" can be found in https://docs.docker.com/build/building/base-images/.

Customized and automated docker command
In order to speed up the build process and automate repetitive tasks, we have our own customized docker command which is especially useful in producing large amounts of MMSolutions in production environments.

Codebase
Hummingbot is an open source software for crypto market makers to develop their own strategies. It has built in websocket connectors with major centralised exchanges, API limit throttlers, unit tests for setups, telegram integration, etc.. It provides a solid codebase for further strategy developments without much concerns on fundamental functionalities.
The hummingbot project is publishing the latest codebase on github every month steadily, with 187 contributors, 2.5k forks and 6.7k stars as of 2024/01/08.
Hummingbot is written in a mix of Python and Cython. In a general sense for hummingbot, Cython is used for fundamental functionalities and Python is used for specific market making logic.
The major advantages of using hummingbot are the speed and reliability of exchange connectivities. The strong community takes care of the API upgrades, coding bugs and new exchange connectivities.

Python and Cython
Cython is the parent layer of Python and the python environment is actually running in the Cython layer. The benefit of running in the Cython layer provides the best optimisation of the source code which is much superior when compared to running computer programs in the Python layer. Strategy script logic is originally written in Cython and well tested with self built unit tests and hummingbot test frameworks.
Another advantage of using Cython is the prevention of reverse engineering from the shared object files. This feature provides protection from introducing competitions during MMSolutions distributions.

Customized and automated Cython command
Our strategy is to shorten development time to better control our time to market and improve the responsiveness of any security issue. One of the best solutions is to have our own cython built and automated tools. Our customized tools work well with different environments including GNU C, docker, OS, etc.

Telegram
Telegram is a familiar communication protocol used by most web3 users. It offers users to create customised bots and perform specific tasks, such as Maestro sniper bot. It also externalises telegram tokens for external applications to integrate for messaging and control.
MMSolutions offers comprehensive logs from OS level, network level, application level as well as user activities logs, api logs, order logs and strategy implementation logs.

Tkinter
Upon purchasing MMBox, the hardware offering of MMSolutions, project owners will find a pre-installed GUI (Graphical User Interface), specifically developed using tkinter, that serves as the gateway to integrating their market making operations with Telegram's intuitive user interface. This application simplifies the onboarding process by automatically creating a bot that acts as the liaison between the MMSolutions system and Telegram, facilitating seamless communication and control. Through this GUI application, users can effortlessly connect to Telegram, enabling them to manage their market making strategies directly through Telegram's user-friendly platform, enhancing accessibility and efficiency in market operations.

List of APIs:
1. Start / Stop Bots.
2. Add / Remove trading pairs.
3. Add / Remove exchange connectivities.
4. Bot/strategy configs.
5. Bot/strategy logs.
6. Exchange account info.
7. Performance.
8. Optimisations.

MMBox Hardware Specification:
The physical micro computer is small in size and provide stable memories for running 2 hummingbot instances, docker, telegram

Item	Specifications
Physical Box	NucBox Micro PC
RAM	8 GB
Storage	128 GB SATA M.2
Speed	Up to 2933mbp/s
Size	

Centralin Catalysts: Core Market Making Strategies:

Volume Strategy: This strategy employs a suite of algorithmic techniques designed to consistently generate trading volume. By maintaining active trading levels, this strategy helps in sustaining market presence and liquidity.

Price Strategy: Focused on interpreting and responding to market trends, this strategy adjusts positions directionally—either buying or selling—based on real-time market outlooks. It aims to capitalize on market movements to achieve profitable trades.

Orderbook Strategy: Essential for maintaining a vibrant market, this strategy involves strategic trades that bolster the orderbook's depth and diversity. By ensuring a continuous flow of buy and sell orders, it enhances overall market liquidity and stability.

Metastrike (MTS) Strategy Overview:

In the Metastrike project, we targeted a primary goal of increasing market visibility and drawing investor interest through a well-planned market elevation strategy. This strategy involved a meticulous market pump designed to stimulate wide participation by lowering the entry barriers for public trading, thus

requiring minimal initial capital investment. To achieve this, we implemented a series of complex algorithmic manipulations tailored to the unique dynamics of the cryptocurrency market.

In our strategic approach to enhance the MTS token's market position, we executed a carefully planned market pump aimed at creating upward momentum. This involved implementing advanced trading algorithms to orchestrate strategic buying patterns. By gradually increasing the token's price through calculated buy orders placed at specific intervals and price points, we aimed to make the token more attractive to both potential investors and current holders. The algorithms were designed to mimic organic market activity, avoiding sudden spikes that could trigger market volatility or regulatory scrutiny.

To complement our market pump strategy, we broadened market participation by facilitating public trading with minimal capital requirements. Recognizing the critical role of inclusivity in fostering a healthy trading ecosystem, our approach aimed to lower the entry barrier for new investors. This was achieved by adjusting the MMSolutions's trading parameters to support smaller transaction sizes, thereby enabling participation from a wider audience with varied investment capacities.

This dual approach not only aimed to enhance the token's attractiveness through price appreciation but also sought to increase its trading volume and liquidity. By increasing market participation, we enhanced the token's resilience and stability, making it a more compelling investment. The integration of these strategies into MMSolutions's functionality showcases our commitment to innovative market making solutions that cater to the evolving needs of the cryptocurrency landscape, ensuring that our methods are both technically sophisticated and inclusive.

Product offerings:

The MMSolutions offerings, comprising MMBox and MMCloud, are structured to accommodate a wide range of market making needs, from individual traders to large-scale operations. Below are the differences in packages for both variants:

MMBox (Hardware) Packages:

Basic MMBox:
● Priced at $24,000 for a one-off payment.
● Suitable for single exchange operations.
● Allows a single user access.
● Equipped with IP restriction and Ukey Authentication for security.
● Designed as a cost-effective solution for small to medium operations.
● Prevents the front-running of strategies.

Standard MMBox:
● Offered at $35,000, reflecting a one-time investment.
● Capable of managing up to 3 different exchanges.
● Permits access for up to 3 users.
● Features enhanced security with IP restriction & Ukey Authentication.
● A scalable option for growing businesses.
● Guards against the front-running of trading strategies.

Premium MMBox:
● Pricing is available upon request, tailored to the needs of the operation.
● Supports multiple exchanges without limitations.
● Allows for multiple user access.
● Provides premium security through HSM integration.
● Comes with customizable strategy algorithms for advanced users.
● Ensures strategies are safeguarded against front-running.

MMCloud (SaaS) Packages:

Basic MMCloud:
● Costs $2,000 per month.
● Access to a single exchange.
● Designed for a single user.
● Comes with basic infrastructure.
● Represents a cost-effective solution for small to medium operations.

Standard MMCloud:
● Priced at $5,000 per month.
● Supports operations across multiple exchanges (up to 3).
● Provides access for multiple users (up to 3).
● Comes with enhanced security features.
● Suitable for scalability in growing businesses.

Premium MMCloud:
● Costs $8,000 per month.
● Allows operations on multiple exchanges with no user limit.
● Tailored dashboards with advanced security measures for data protection.
● Customizable strategy algorithms for advanced users.

Each package within the MMBox and MMCloud offerings is thoughtfully designed to cater to the varying needs of market participants, with scalability and security as key features tailored across the spectrum from basic to premium levels. Whether clients prefer the physical robustness of MMBox or the virtual scalability of MMCloud, MMSolutions provides the flexibility and technological sophistication to empower traders and businesses in the evolving crypto market space.

Leveraging DePIN:

MMSolutions has strategically integrated DePIN (Decentralized Private Networking) technology, leveraging the decentralized compute, storage, and networking capacities inherent in blockchain infrastructures. This technical convergence facilitates a decentralized market making model that not only enhances the operational efficiency of MMSolutions but also introduces a dual-revenue mechanism for our clients. Through DePIN, MMSolutions gains access to a distributed ledger environment, which permits an array of computational and storage processes to occur simultaneously across various nodes, thus reducing latency and improving transaction throughput.

The technical framework of MMSolutions, augmented by DePIN, enables our clients to execute high-frequency trading algorithms, maintain real-time data synchronization, and employ distributed order books with increased security and less susceptibility to single points of failure. Furthermore, the amalgamation of MMSolutions with DePIN protocols advances our security model by distributing trust across multiple nodes, thereby mitigating risks associated with centralized systems.
This sophisticated technical architecture not only aligns with the principles of decentralized finance but also capitalizes on the inherent redundancy and fault tolerance of distributed systems. Clients benefit from an enhanced robust market making toolset with the added assurance of participating in a secure and extensive DePIN network, setting a new precedent in the market making landscape.

Token Voting Mechanism

Users of MMBox and MMCloud automatically partake in mining activities, earning MMS tokens by operating market making (MM) bots. These tokens can be further staked for greater voting power, enabling token holders to influence decisions on which tokens or coins will be prioritized for market pumps each week.
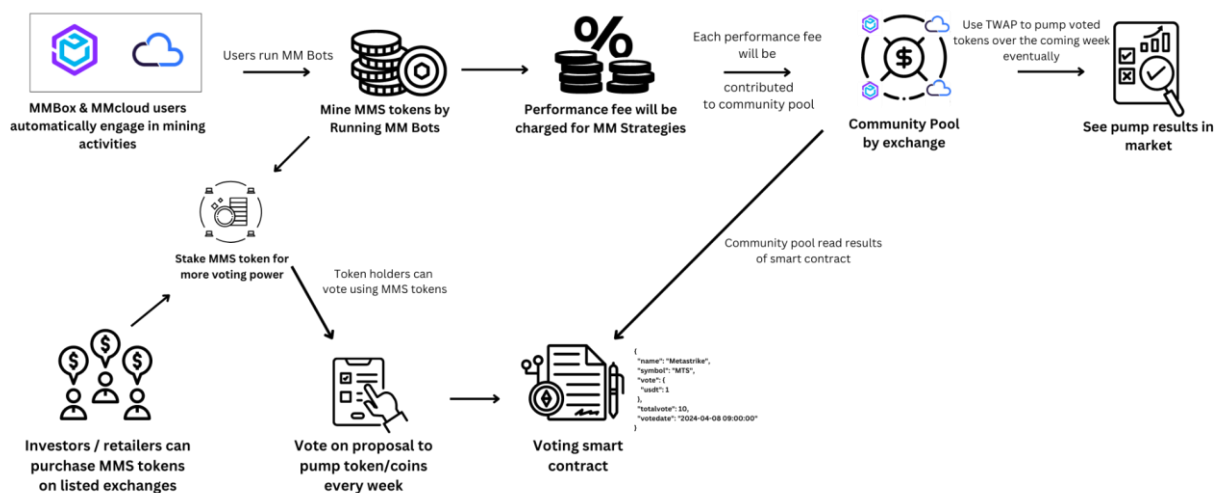

Investors or retailers are given the opportunity to purchase MMS tokens on listed exchanges, fostering an inclusive environment where all market participants can have a stake in the market making strategies being deployed. A portion of the performance fees collected from MM strategies is contributed to a community pool. This pool, governed by smart contracts, transparently manages the distribution of funds and voting outcomes.
Token holders exercise their influence by voting on proposals to pump various tokens or coins. Votes are tallied via a voting smart contract that ensures accuracy and transparency. Subsequently, a TWAP (Time-Weighted Average Price) strategy is employed to systematically elevate the chosen tokens' market

positions over the ensuing week. The results of these market pumps are observable in real-time, providing immediate feedback on the voting mechanism's efficacy.

This closed-loop system exemplifies a decentralized approach to market making where community engagement directly correlates with market activities, aligning with the ethos of blockchain and the spirit of decentralized finance. It is a self-sustaining model that not only empowers users with decision-making capabilities but also rewards active participation and contribution to the ecosystem's success.
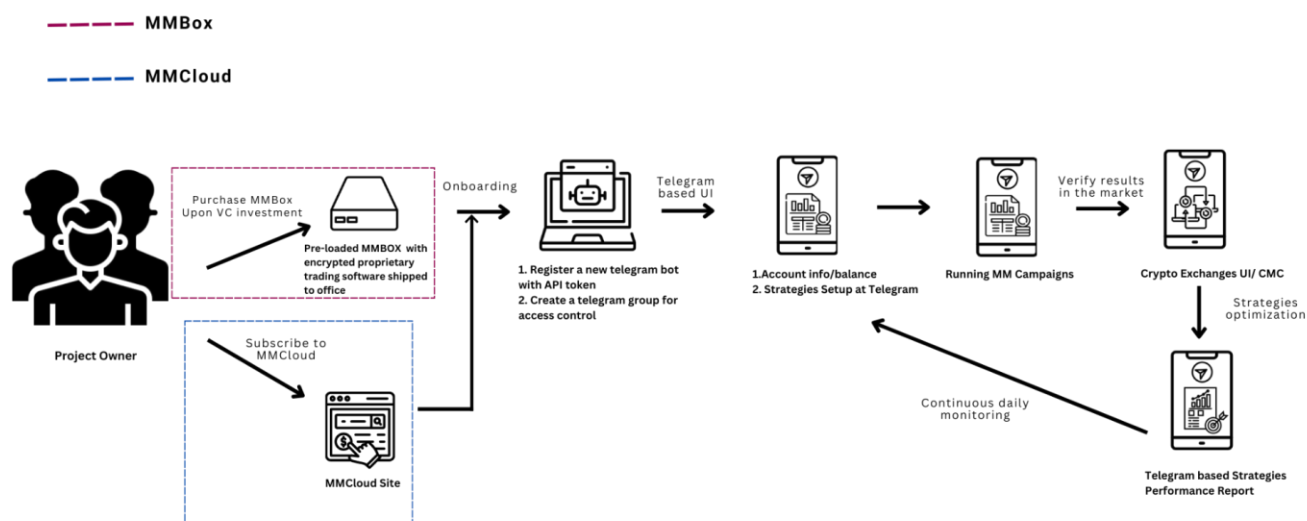
Challenges and Limitations:

The MMSolutions platform is engineered with a robust security protocol that commits the system to enhance the market presence of a designated altcoin. Once configured for a specific digital asset, this protocol secures the system against reallocation for the market making of any other cryptocurrency. This stringent security measure ensures the exclusivity of the MMSolutions investment, maintaining its customization for the initial altcoin's unique market requirements and upholding our pledge to provide secure, bespoke services to each client.

Commitment to Security Standards:

As part of our unwavering commitment to security and to reinforce the trust placed in us by our clients, MMSolutions has initiated the process of obtaining FIPS certification within our first year of operation. FIPS certification is a U.S. government computer security standard used to accredit cryptographic modules. The pursuit of this certification underlines our dedication to meeting the highest security and compliance benchmarks in the industry. It exemplifies our proactive stance in ensuring that MMSolutions adheres to stringent security protocols, offering peace of mind to our clients and upholding our reputation as a trusted provider in the cryptocurrency market making domain.

Conclusion:

In summarizing the technical exploration of MMSolutions, it is evident that the platform is at the vanguard of advancing cryptocurrency market making. By harnessing advanced technologies, including decentralized private networking and smart automation within a user-centric framework, MMSolutions stands as a beacon of innovation, adeptly addressing the current market's intricacies and establishing a solid foundation for future technological breakthroughs.

The seamless integration of DePIN technology is particularly noteworthy, as it exemplifies a deep technical synergy that enhances computational efficiency and broadens the scope of decentralized resource utilization. This sophisticated integration aligns with the core principles of blockchain and decentralized finance, fortifying MMSolutions' infrastructure and offering clients a robust, scalable, and secure market making environment.

As the cryptocurrency market landscape undergoes continual transformation, MMSolutions is resolute in its commitment to technical innovation. The platform is continuously refined, embracing the fluidity of market demands and technological evolution, to ensure that MMSolutions not only meets but exceeds the rigorous expectations of an ever-advancing digital trading ecosystem.