

# WHITE PAPERS

## MTT Network

Beta 0.1



MTT Network

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# PREFACE

MTT Network is a public block chain project built on the Cosmos SDK and compatible with EVM, designed specifically to meet the demands of E-sports tournaments. It provides a stable and reliable infrastructure to support the development of tournament-related decentralized applications within its ecosystem.

On-chain E-sports tournaments presents several technical challenges, requiring robust computing power to support high-concurrency processing and real-time response, along with good scalability and low latency to handle large volumes of player requests. MTT Network, through its scalable design and optimized distributed database solutions, maintains efficient data processing even under high concurrency, ensuring smooth tournament operations and effective handling of massive global player requests.

MTT Sports is the first decentralized application on the MTT Network, focusing on MTT (Multi-Table Tournament) competitions. The platform leverages block chain technology to enhance fairness and security in tournaments, with all events and community governance conducted on MTT Network. The MTT token creates a fair competitive environment for players worldwide.

# I. MTT NETWORK INTRODUCTION

Chain Name: Mtt Network

URL: <https://evm-rpc.mtt.network/>

Chain ID: 6880

Currency: MTT

## A. OVERVIEW

MTT Network is a high-performance EVM-compatible public block chain platform based on Cosmos SDK, dedicated to providing flexible and efficient solutions to support the development and deployment of various decentralized applications. Its core objectives include:

- **Efficient Transaction Processing:** MTT Network utilizes the Tendermint consensus algorithm to provide fast and secure transaction confirmations.
- **Powerful Cross-chain Interoperability:** Leveraging IBC, MTT Network can achieve seamless exchange of assets and data with other block chains.
- **Flexible Governance Mechanism:** MTT Network supports a decentralized governance model, granting community members greater participation and decision-making power.

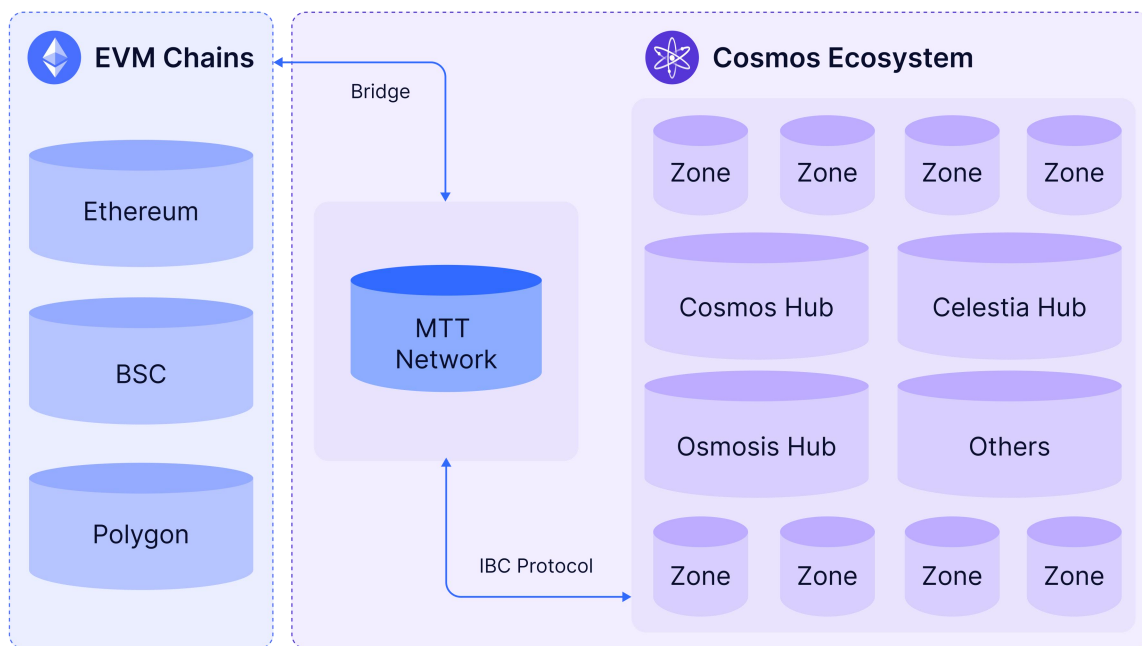


Figure 1. MTT Network In Web3

### Key Features:

- **Modular Design:** Through a flexible modular design, MTT Network can quickly integrate and deploy different functional modules, supporting diverse application scenarios.
- **Smart Contract Support:** MTT Network adopts the Ethermint module, supporting EVM smart contracts, providing developers with enhanced programming flexibility and security.
- **Cross-chain Communication:** Through the IBC protocol, MTT Network can perform cross-chain operations with other block chains, enabling seamless transfer of assets and information.

## B. Architecture

The technical architecture of MTT Network is based on Cosmos SDK, utilizing its mature modular design to implement various functionalities. The following are the core technical architecture components of MTT Network:

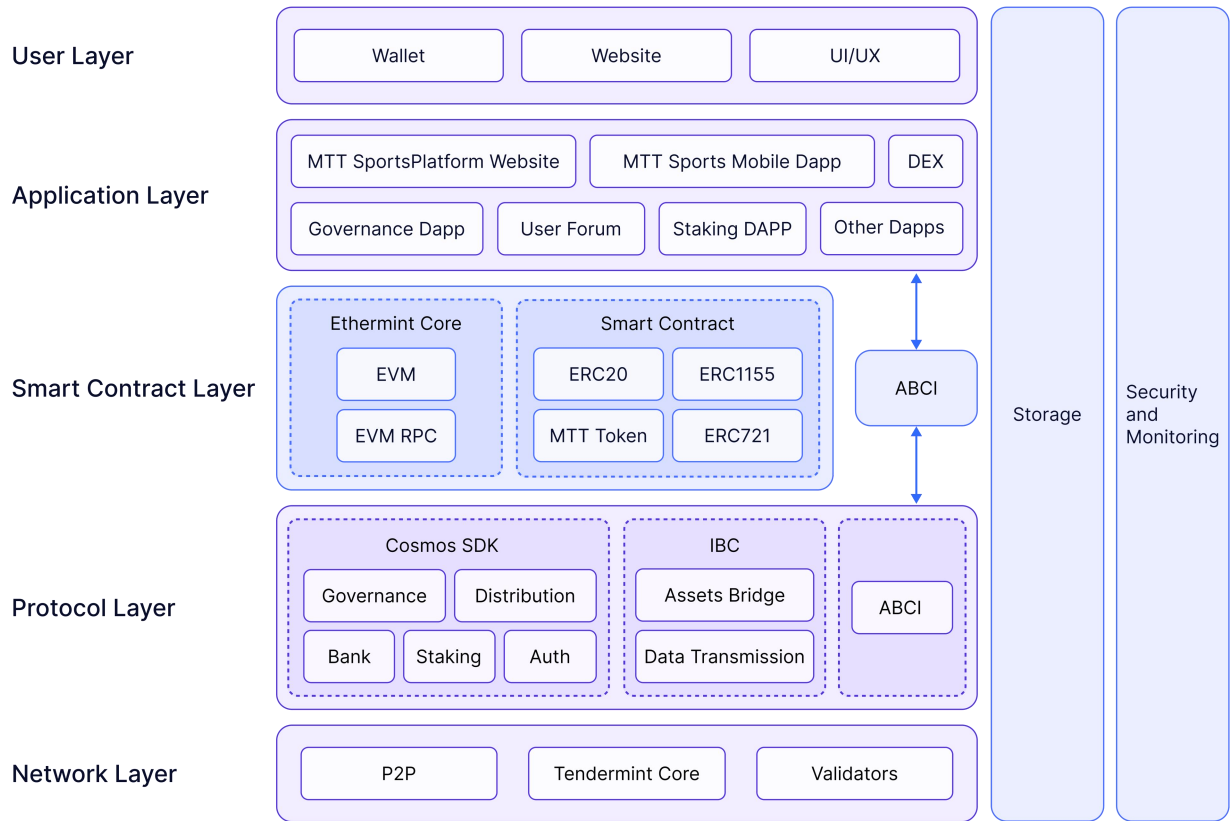


Figure 2. MTT Network Technical Architecture

### 1) Tendermint Core

MTT Network utilizes the Tendermint consensus algorithm, a Byzantine Fault Tolerant (BFT) consensus engine that ensures system consistency and security even in adverse network conditions. Tendermint Core provides efficient transaction processing capabilities and rapid finality confirmation, enabling MTT Network to support high-throughput applications.

### 2) Cosmos SDK Modules

MTT Network has adopted multiple core Cosmos SDK modules and customized them to meet the project's specific requirements. These modules include, but are not limited to:

- **Auth (Account Management):** Manages user accounts and permissions, ensuring transaction legitimacy.
- **Bank (Token Transfer):** Provides basic token transfer functionality, supporting fast and secure transfers of MTT tokens.
- **Staking:** Implements staking and delegation functions, supporting network consensus maintenance and providing staking rewards.
- **Governance:** Implements a decentralized governance mechanism, allowing MTT token holders to participate in decision-making for network upgrades, parameter adjustments, etc.
- **Distribution:** Manages the distribution of block rewards, ensuring transparent and fair returns for stakers and validators.

### 3) Cross-chain Interoperability

MTT Network supports secure and rapid asset and data exchange with other block chains through IBC (Inter-Blockchain Communication protocol). IBC is a crucial component of the Cosmos network, enabling seamless communication between different block chains, supporting cross-chain asset transfers, data sharing, and cross-chain smart contract invocations.

### 4) Introduction of Ethermint Module

MTT Network has adopted an EVM-compatible module, supporting Solidity smart contracts. Ethermint also allows developers to write EVM-compatible smart contracts using various programming languages such as **Vyper** and **Yul**, providing higher security and execution efficiency.

- **Usability:** Due to the adoption of an Ethereum-compatible smart contract environment, developers familiar with the Ethereum ecosystem can quickly get started without additional learning costs. This significantly lowers the entry barrier for third-party developers.
- **Ecosystem Extensibility:** The EVM-compatible architecture can attract more Ethereum developers and projects to migrate or deploy cross-chain to the Cosmos network, thereby enriching the application scenarios of the entire ecosystem.

## C. Validator Nodes

Validator nodes are a core component of the MTT Network ecosystem, responsible for maintaining network security, achieving consensus, and generating blocks. Validators participate in network consensus by staking MTT tokens and receive corresponding rewards and incentives. To ensure network decentralization, security, and efficiency, MTT Network has designed a comprehensive validator mechanism.

### 1) Roles and Responsibilities of Validators

Validator nodes play a crucial role in MTT Network, with specific responsibilities including:

- **Block Generation:** Validator nodes generate new blocks by participating in the consensus algorithm (Tendermint BFT), recording on-chain transactions and ensuring data consistency.
- **Transaction Validation:** Validator nodes are responsible for validating all transactions in the network, ensuring they are valid and comply with network rules.
- **Consensus Maintenance:** Validators participate in the consensus protocol, reaching network consensus through a voting mechanism to decide which transactions will be included in new blocks.
- **Network Security:** Validator nodes provide network security by staking MTT tokens. If a validator behaves improperly or maliciously, their staked tokens may be slashed (i.e., the "punishment" mechanism).

### 2) Validator Election

In MTT Network, the number of validator nodes is limited. The network selects a certain number of validator nodes through an election mechanism. The election process consists of the following steps:

- **Staking:** Node operators need to stake a certain amount of MTT tokens to become candidate validators. The more MTT tokens staked, the higher the probability of being selected as a validator.
- **Delegation Voting:** In addition to the node operator's own stake, MTT token holders (called delegators) can also delegate their tokens to candidate validators, increasing the candidate's election weight. Delegators will receive rewards based on the performance of the validator node they delegated to.

- **Ranking and Election:** All candidate validators are ranked based on the total amount of MTT tokens staked (including self-staked and delegated). The top-ranked validators will be selected as official network validators, responsible for block generation and transaction validation.
- **Regular Updates:** Validator node elections are not permanent. MTT Network regularly updates the validator list to ensure network decentralization and fairness. If a validator's total stake falls below a certain level, they may be replaced.

### **3) Validator Incentive Mechanism**

To incentivize validator nodes to actively participate in network maintenance, MTT Network has designed an incentive mechanism including block rewards and transaction fee distribution:

- **Block Rewards:** Whenever a validator successfully generates a new block, the network provides a certain amount of MTT tokens as a reward. The amount of block rewards depends on the network's overall economic model and token issuance plan, referring to MTT Tokenomics.
- **Transaction Fees:** Each transaction in the network generates a certain amount of GAS transaction fees, which are collected by validator nodes and proportionally distributed among validators participating in consensus and their delegators. The distribution of transaction fees is typically based on the validator's contribution.
- **Inflation Rewards:** These rewards come from the network's inflation model and transaction fee pool, which need to be agreed upon under the community governance framework.

### **4) Punishment Mechanism (Slashing)**

To prevent malicious behavior or inefficient operation by validator nodes, MTT Network has introduced a punishment mechanism, known as "slashing." When a validator node encounters the following situations, their staked MTT tokens may be partially or fully slashed:

- **Double Signing:** A validator node signs two different blocks simultaneously, which is a serious malicious behavior and will result in severe slashing penalties.
- **Downtime or Instability:** If a validator node is offline for an extended period or unable to maintain stable operation, network security and consensus processes may be affected, resulting in slashing of the validator's staked tokens.
- **Other Malicious Behaviors:** Including but not limited to deliberately submitting incorrect information during consensus, manipulating voting results, etc., which will trigger the slashing mechanism.

The slashing mechanism is not only a punishment for validators but also protection for the entire network, ensuring that validator nodes fulfill their duties and maintain network security and stability.

### **5) Validator Governance Participation**

Validator nodes are not just maintainers of technology and consensus; they also play an important role in the governance process of MTT Network. Validators can participate in the following matters through governance voting:

- **Network Upgrades:** Validators can participate in deciding network protocol upgrades and improvements, including the addition of new features, performance optimizations, and security vulnerability patches.
- **Parameter Adjustments:** Some key network parameters (such as block rewards, transaction fee rates, etc.) may need periodic adjustments, and validators can vote to decide on these parameter changes.
- **Community Proposals:** Community members can submit proposals for new features or improvement suggestions. Validators can vote to decide whether to adopt these proposals.

## 6) Requirements for Becoming a Validator

MTT Network has high requirements for the technical and operational capabilities of validator nodes to ensure network security and reliability. Becoming a validator node typically requires the following conditions:

- **Technical Infrastructure:** Validator nodes need high-performance server hardware, ensuring 24/7 online operation and the ability to process large amounts of transactions and data.
- **Network Connectivity:** Validator nodes need stable and high-speed network connections to ensure low-latency and high-throughput transaction processing capabilities.
- **Security Measures:** Validator nodes need to implement strict security measures, including firewall configurations, DDoS protection, backup and disaster recovery plans, etc., to prevent malicious attacks and data loss.
- **Operational Capability:** Validator node operators need to possess extensive blockchain knowledge and technical experience to handle daily maintenance, upgrades, and troubleshooting of nodes.

Through these strict requirements and comprehensive incentive mechanisms, MTT Network ensures the high quality and reliability of its validator nodes, thereby guaranteeing the security and stability of the entire network.

## 7) Rewards Plan

MTT Network's validator reward mechanism is inspired by the Bitcoin issuance model, adopting a gradual halving mode to ensure long-term network stability and token value appreciation. Specifically, MTT Network will conduct a reward halving every four years, with an initial total supply of 210,000,000 MTT tokens.

### ● Reward Distribution and Halving Mechanism

MTT Network distributes MTT tokens to validator nodes through block rewards. Validator nodes generate new blocks by participating in the consensus algorithm (Tendermint BFT) and receive rewards based on block generation. To pay homage to Bitcoin's economic model, MTT Network has designed the following reward mechanism:

- ✓ **Initial Reward:** In the network's first block cycle (i.e., the first four years), each new block will issue a fixed amount of MTT tokens as a reward. The total amount of initial block rewards will be calculated based on the distribution plan of 210,000,000 tokens.
- ✓ **Four-Year Halving:** Every four years (based on block height), the block reward will be reduced by half. This halving process will continue until the block reward is reduced to nearly zero, achieving a deflationary model similar to Bitcoin.
- ✓ **Reward Distribution:** The reward for each new block will be equally divided among validator nodes participating in block generation and consensus. The rewards not only incentivize validator nodes to actively participate in network maintenance but also encourage token holders to delegate tokens to validator nodes for returns.

### ● Token Release Schedule

- ✓ **Years 1-4:** The initial reward for each block is X MTT tokens (X will be set based on the number of validators and distribution plan at that time). This phase is expected to release approximately 105,000,000 MTT tokens, accounting for 50% of the mining supply.
- ✓ **Years 5-8:** The reward for each block will be halved to  $X/2$  MTT tokens, expected to release approximately 52,500,000 MTT tokens, accounting for 25% of the mining supply.
- ✓ **Years 9-12:** The reward for each block will be halved again to  $X/4$  MTT tokens, expected to release approximately 26,250,000 MTT tokens, accounting for 12.5% of the mining supply.

- ✓ Thereafter: Block rewards continue to halve every four years until the issuance of new tokens becomes extremely small, approaching zero.

## ● Long-term Impact of the Mechanism

- ✓ Deflationary Effect: Over time, the growth rate of token supply will gradually slow down and eventually approach a constant. In the long run, this will lead to a gradual increase in the scarcity of MTT tokens, helping to maintain their market value.
- ✓ Long-term Incentives: Although mining rewards will gradually decrease over time, the overall user base of MTT Network is continuously increasing. The utility of MTT tokens in the MTT Sports Platform will lead to positive operations of the treasury. Through DAO governance, certain revenues can be allocated to miners, enhancing their enthusiasm for participating in network consensus and achieving a dynamic balance between network users and validators.
- ✓ Network Security: The reduction in validator rewards will encourage network validators to maintain their competitiveness in the network by increasing stake amounts, optimizing operational costs, etc., thereby maintaining the overall security and decentralization of the network.

## D. Cross-Chain Communication and Asset Interoperability

MTT Network's cross-chain communication and asset interoperability functions are designed to solve the "blockchain island" problem, enabling secure and fast exchange of assets and data across different blockchains. Leveraging the Inter-Blockchain Communication (IBC) protocol, MTT Network can interoperate with other blockchain networks in the Cosmos ecosystem while also supporting diverse cross-chain application scenarios. Additionally, MTT Network is compatible with EVM (Ethereum Virtual Machine) chains, allowing interaction with blockchains within the Ethereum ecosystem. These features drive innovation and development in decentralized finance (DeFi), cross-chain NFT marketplaces, and on-chain governance.

### 1) IBC (Inter-Blockchain Communication Protocol)

IBC is one of the core technologies in the Cosmos ecosystem. It provides a standardized cross-chain communication method that enables secure and reliable data and asset transfer between different blockchains. MTT Network achieves cross-chain communication based on the IBC protocol, with specific functionalities including:

- ✓ **Secure Cross-Chain Messaging:** The IBC protocol uses a light-client verification mechanism to ensure the security and validity of cross-chain messages. The light client can verify the state proofs of another blockchain, enabling safe message transfer between different blockchains without relying on trusted intermediaries.
- ✓ **Flexible Cross-Chain Protocol Support:** IBC offers a modular communication framework that supports various cross-chain protocols. This means developers can easily implement customized cross-chain functionalities based on IBC, meeting the needs of different application scenarios.
- ✓ **Scalability and Compatibility:** The IBC protocol is designed to support various types of blockchains, not just those based on the Cosmos SDK. Through standardized protocol interfaces, MTT Network can seamlessly interact with other IBC-compatible blockchains (such as Cosmos, Osmosis, dYdX, Celestia, etc.) and support future cross-chain expansions.

## 2) Cross-Chain Asset Transfer Process

- ✓ **Asset Locking:** When initiating a cross-chain transfer, the user must first lock the asset on the source chain (e.g., MTT Network). This process is typically implemented by a smart contract or a cross-chain bridge to ensure the locked assets cannot be double-spent on the source chain.
- ✓ **Cross-Chain Message Transmission:** After asset locking, the cross-chain message is transmitted to the target chain (e.g., Cosmos Hub) through the IBC protocol. This message includes information about the asset type, quantity, and recipient address. The IBC protocol ensures the security and integrity of the message transfer.
- ✓ **Asset Minting/Unlocking:** Upon receiving the cross-chain message on MTT Network, the target chain executes the asset minting or unlocking operation based on the message content. For cross-chain transfers, MTT Network mints the corresponding quantity of fungible or non-fungible tokens (NFTs) in the recipient's account. If the operation is in the reverse direction (transferring assets from MTT Network to another blockchain), the previously locked assets on the source chain are unlocked.
- ✓ **Confirmation and Completion:** Once the asset minting or unlocking is complete, the transaction is confirmed on MTT Network, and the cross-chain asset transfer process is finalized. The user can freely use or transfer the assets on the target chain.

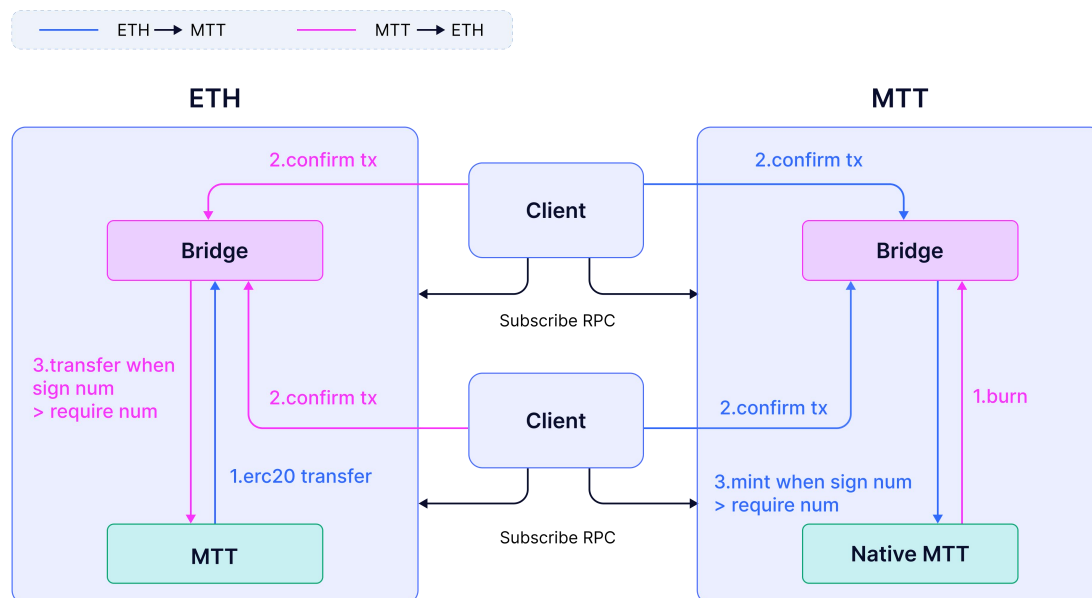


Figure 3. Cross-Chain Asset Transfer Process

## 3) Cross-Chain Asset Management and Applications

MTT Network's cross-chain asset interoperability supports various asset types, including Fungible Tokens (FT) and Non-Fungible Tokens (NFT), offering broad support for DeFi, NFT markets, and other cross-chain applications:

- ✓ **Cross-Chain DeFi:** Users can transfer assets from other blockchains to MTT Network to participate in decentralized lending, liquidity mining, and other DeFi activities. This cross-chain asset interoperability greatly expands the range of available assets and liquidity within MTT Network's DeFi applications.
- ✓ **Cross-Chain NFTs:** MTT Network supports the cross-chain transfer and trading of NFTs, allowing users to move NFTs from other blockchains to MTT Network for trading, showcasing, or use in decentralized applications. This enhances cross-chain interoperability within the NFT market, improving the liquidity and value of NFT assets.

- ✓ **Cross-Chain Governance:** Through the IBC (Inter-Blockchain Communication) protocol, MTT Network users can participate in governance on other blockchain networks or introduce governance mechanisms from other chains into MTT Network. Cross-chain governance allows for more complex multi-chain collaboration and governance mechanisms, strengthening the synergy within the blockchain ecosystem. This feature will be gradually developed in future stages.

#### 4) Security and Challenges

Although the IBC protocol and cross-chain asset interoperability bring significant potential and flexibility to MTT Network, they also present challenges and security concerns:

- ✓ **Smart Contract Risk:** Cross-chain asset transfers depend on the proper execution of smart contracts. If there are vulnerabilities in the smart contracts, it could result in asset loss or theft.
- ✓ **Trust Issues with Cross-Chain Bridges:** Many cross-chain bridges rely on third-party trust assumptions. If these bridging points are attacked or malfunction, cross-chain assets may be lost.
- ✓ **Network Delays and Synchronization Issues:** Different blockchains may have varying network synchronization speeds, leading to delays in cross-chain message transmission. This can negatively affect the user experience and efficiency of cross-chain transactions.

To address these challenges, MTT Network implements multiple security measures, including smart contract audits, multi-signature mechanisms for cross-chain bridges, and continuous optimization and upgrades to the IBC protocol.

## E. Security Solutions for Partially Centralized Deployments

Despite some MTT Sports functionalities being deployed on centralized servers, MTT Network enhances overall system security, fairness, and transparency by combining blockchain technology with a series of security measures. The following outlines how MTT Sports overcomes security challenges posed by centralized deployments to ensure player rights and a fair gaming experience.

Deploying a Texas Hold'em application on centralized servers may face the following security risks and challenges:

- **Data Tampering and Cheating:** Centralized servers are vulnerable to attacks or internal tampering, potentially leading to unfair game outcomes.
- **Server Failures and Single Points of Failure:** Centralized architectures are susceptible to server failures, potentially causing service disruptions or data loss.
- **User Privacy and Funds Security:** Players' personal information and transaction data stored on centralized servers may be at risk of exposure or theft.
- **Trust Issues:** Players must trust the operators of centralized servers, which conflicts with the decentralized, trustless principles of blockchain technology.

#### 1) Security Solutions and Strategies

To overcome these challenges, MTT Network's Texas Hold'em application will adopt the following strategies and technologies, leveraging the advantages of blockchain to enhance system security and trustworthiness.

- ✓ **On-Chain Key Logic:** Move the core game logic and key data onto the blockchain to ensure transparency and immutability. Specific measures include:
- ✓ **On-Chain Betting and Settlement:** All betting actions and fund settlements are executed via smart contracts, ensuring the transparency and traceability of each transaction, preventing fund misuse.
- ✓ **On-Chain Random Number Generation:** Use verifiable random number generators (such as VRF - Verifiable Random Function) to ensure fair and unpredictable card dealing, preventing manipulation.
- ✓ **On-Chain Storage of Game Results:** Final game outcomes and critical events are recorded on the blockchain, allowing anyone to verify and audit the results, increasing trust.

This improves transparency, ensuring that players do not need to trust centralized servers to guarantee fair play, while blockchain immutability safeguards data integrity and security.

- ✓ **Hybrid Architecture Design:** Adopt a "On-chain + Off-chain" hybrid architecture, where parts that require high-frequency interaction and real-time processing are handled off-chain, balancing performance and security. Specific implementations include:
- ✓ **Off-Chain Real-Time Interaction:** Player actions and interactions are processed on centralized servers for smooth gameplay experiences.
- ✓ **Periodic State Synchronization:** Centralized servers periodically synchronize game states and data to the blockchain, ensuring data consistency and verifiability.
- ✓ **Data Verification Mechanism:** On-chain data verification mechanisms validate off-chain processed data, preventing tampering or fraudulent activity.

This approach ensures high performance and low latency while maintaining security and trust through on-chain data verification.

## 2) Strengthening Security for Centralized Servers

- ✓ **Advanced Encryption Technologies:** Use advanced encryption algorithms (e.g., TLS/SSL, AES) during data transmission and storage to protect user data and sensitive information.
- ✓ **Access Control and Permission Management:** Implement strict access control policies to limit access to servers and databases, preventing unauthorized operations.
- ✓ **Security Monitoring and Intrusion Detection:** Deploy real-time security monitoring systems and intrusion detection systems (IDS) to detect and respond to potential security threats promptly.
- ✓ **Regular Security Audits and Penetration Testing:** Conduct regular security audits and penetration testing to identify and fix security vulnerabilities, improving overall security levels.
- ✓ **Disaster Recovery and Backup Mechanisms:** Establish comprehensive backup and disaster recovery mechanisms to ensure quick service recovery in case of unexpected incidents and prevent data loss.

These multi-layered security defenses effectively reduce the risk of attacks and data breaches on centralized servers, improving system reliability and availability while ensuring continuous and stable service.

## 3) Introducing Multi-Party Trust and Audit Mechanisms

- ✓ **Third-Party Security Audits:** Invite independent security organizations to audit the system, verifying the effectiveness of security measures and publishing audit results to enhance user trust.
- ✓ **Community Oversight and Feedback:** Establish a community oversight mechanism, encouraging users to participate in monitoring and providing feedback, helping to promptly identify and resolve issues.

- ✓ **Multi-Signature Wallets:** Use multi-signature wallets for fund management, requiring approval from multiple authorized parties before funds can be transferred, preventing single points of failure and internal misconduct.

Third-party audits and community oversight increase system transparency and user trust, while multi-party trust mechanisms prevent internal corruption and fund misuse risks.

## II. DEVELOPER PROGRAM

The MTT Network developer ecosystem is designed to support developers in creating rich tournament application scenarios, centered around the core value of the chain.

According to the Roadmap's milestone plan, MTT Network will offer comprehensive infrastructure and tool support, including development toolchains and standardized smart contract templates. The focus is especially on tournament-related functional modules, such as multi-tier tournament management and NFT ticket issuance, to help developers quickly get started. Cross-chain interoperability is also key. MTT Network integrates with assets and functionalities from other chains through the IBC protocol, enhancing the diversity and appeal of tournament applications.

Additionally, the community and support system are crucial for developer growth. Through developer incentive programs, educational resources, and on-chain testing resources, MTT Network ensures continuous support and motivation for developers. Decentralized governance is equally indispensable, with MTT DAO allowing developers to directly participate in decision-making regarding the direction of on-chain feature development. The on-chain application marketplace and open API system will provide a platform for developer innovation, driving MTT Network to become a decentralized ecosystem leader in the field of tournament applications.

## III. DECENTRALIZED AUTONOMOUS ORGANIZATION

### A. DAO Organizational Operations

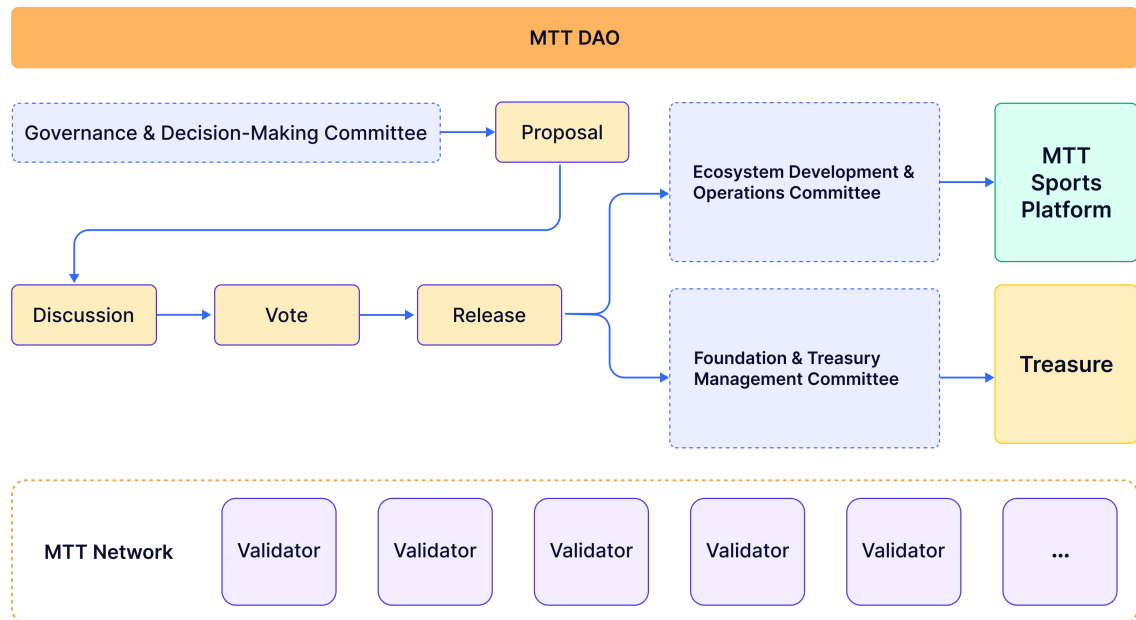


Figure 4. DAO Organizational Operations

- **Governance & Decision-Making Committee** Responsible for establishing the core rules and strategic direction of the DAO, evaluating community proposals, managing the voting process, and overseeing execution.
- **Operations & Ecosystem Development Committee** Focuses on promoting the growth of the MTT Sports ecosystem, advancing day-to-day operations, managing the implementation of projects, and allocating resources on the platform. This committee ensures that approved proposals are effectively implemented.
- **Foundation & Treasury Management Committee** In charge of managing the financial resources and treasury funds of the MTT ecosystem, overseeing token issuance and financial expenditures. The committee ensures transparency in fund usage and regularly reports financial status and audits to the community.

## B. DAO Governance Credentials

The main participants of the MTT DAO are MTT token holders.

To diversify governance, the community can vote to include members who have made special contributions to the community. These contributions extend beyond just holding or staking tokens and include a wide range of efforts:

- **Technical contributors** provide support for smart contract development, platform optimization, and security improvements for MTT Network.
- **Community builders** organize activities to enhance community cohesion.
- **Content creators** write tutorials, analysis articles, and promote the project.
- **Ecosystem partners** bring in external resources, fostering collaborations.

By incorporating these members, MTT DAO's decision-making process becomes more diverse and innovative, laying a solid foundation for the community's long-term growth.

# GLOSSARY

**EVM (Ethereum Virtual Machine):** A virtual execution environment that supports a single scripting language, primarily used in Ethereum-based smart contracts.

**Candidate:** A nominee for the role of Validator, responsible for participating in the election process to become a Validator.

**Validator:** Selected from Candidates, Validators are responsible for signing messages in the Tendermint consensus process.

**Delegator:** An individual who delegates their MTT tokens to a Validator (or Candidate) and shares in the associated rewards.

**Unbonding period :** The buffer time from when a holder initiates unbonding to when they regain control over their MTT tokens.

**Transaction fees :** Fees included in an MTT Network transaction, earned by Validators, and distributed among Validators and Delegators based on their bonded Atom amounts.

**Commission fee:** A fee taken by Validators for the services they provide, deducted from the transaction fees.

**Double Signing:** A serious malicious act where a Validator node signs blocks on two different chains simultaneously.

**Verifiable Random Function (VRF):** A function used to generate random numbers that can be verified for authenticity and integrity.

**GAS:** Transaction fees on the MTT Network, used to pay for the computational resources required to process and validate transactions.

**IBC (Inter-Blockchain Communication Protocol):** A protocol enabling different blockchains to communicate and interact with each other.

**Solidity:** A binary instruction format for a stack-based virtual machine, used for deploying smart contracts in a more efficient and secure manner on blockchains.

**Cosmos SDK:** Modular components of the Cosmos SDK, which provide various functionalities for building blockchain applications.

**Tendermint:** A consensus algorithm used in Cosmos-based blockchains, providing Byzantine Fault Tolerance (BFT) to ensure network security and consensus.

**Validator Node:** A node in the blockchain network responsible for validating transactions and creating new blocks as part of the consensus mechanism.

**RNG (Random Number Generator):** A system or algorithm used to generate random numbers, often utilized in gaming and cryptographic applications.

**MTT in Poker (Multi-Table Tournament) :** A poker tournament format where players are distributed across multiple tables, as opposed to single-table tournaments or sit-and-goes.

**Vyper:** A high-level programming language designed for the Ethereum Virtual Machine (EVM), focusing on simplicity and security, making it particularly suited for developing smart contracts that prioritize code safety and auditability.

**Yul:** An intermediate-level programming language used for optimizing smart contract execution on the Ethereum Virtual Machine (EVM), serving as a low-level language that compiles into EVM bytecode and is often used for optimization purposes.

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