

BIGPLAYER NETWORK

A decentralized gambling platform

V1.0

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Extract

Bigplayer Network is a decentralized gambling game platform that base on blockchain technology. It aims at structuring an ecosystem for gambling games base on blockchain, which makes the natural character of blockchain: p2p, decentralization, unchangeable and low cost a perfect fit for gambling industry. Bigplayer network can be treat as a standardized smart contract, which specifically designed for gambling business, the standardized operating norm make the feasibility of untrusted anonymous gambling game possible. It encloses the procedures of common asset management, payment and settlement in gambling business, which reduces workload of migrating gambling business to decentralized platform, to achieve low cost and high efficiency. Bigplayer Network use multilayer structure, the solution of which is to deploy blockchain compatible onto the blockchain, which is supported by smart contract.

1. Briefing

1.1 Background

Gambling: as the reboost of gambling in 2016, agency forecasts that in the year 2018 the whole market might hit 500 billion USD. In the meantime, gambling business goes into multi-ends and cyberlized. Gambling grows stably and has been accepted by more and more countries and regions. As the financial and Internet industry boost, the innovation of gambling becomes a must. Especially the introduction of blockchain technology will definitely make gambling an overturning innovation.

Blockchain: in January 2009, Satoshi Nakamoto announced bitcoin, he introduced two concepts to the public: one is bitcoin, a decentralized p2p digital

currency system; another is blockchain technology. Bitcoin is the first application of blockchain, and public has accepted today. As the researcher and developer gradually focus on the blockchain itself, and think about how it can be applied in fields other than finance and currency. The birth of Ethereum makes blockchain easier to apply in other industries. It brings a set of blockchain supported by Turing completeness, and by using this language it can realize some business situation by using smart contract. ETH brings and boosts the opportunity of industry application of blockchain.

1.2 Current Situation

For all those years, the online gambling industry has been doubted by all quarters. The most concerned questions are:

- 1.2.1 Player's asset safety. As the development of online gambling business, the game providers differentiate. Counterfeit and fraud, provider goes bankruptcy sometimes. Players are bearing the risk from the loss of their asset.
- 1.2.2 Game platform transparency. Some particular providers cheat players by publishing fake result or maliciously manipulating result, or even not paying out when player wins.
- 1.2.3 Personal information safety. Some providers make profit or do money laundering by selling players' information, which brings more risk for player. By using blockchain it can solve those questions well. Players' asset has been stored on decentralized blockchain, players have the right to use them by themselves and guarantee the safety. The logic of game is deployed by unchangeable smart contract. Asset payment totally obeys the operating result of blockchain, with no centralized platform to disturb. Player's information is totally anonymous, there's absolutely no need to worry about personal information release. The

digital asset store on blockchain is not managed by any country and agency.

1.3 Prospect

Bigplayer Network aims at providing a whole set of gambling game solutions. Protect player's benefit and lower gambling provider's cost, and make the whole ecosystem benefit from it. To say it simply, Bigplayer hopes to use blockchain to make player and game provider reach a consensus. Base on common ground, develop digital asset business through common standardized platform, and provide players with more fair and trustworthy choices.

To achieve those purpose, Bigplayer Network provides a whole set of solutions, which include base technology structure building and economy driven system mode building. The second chapter will mainly discuss economy driven eco mode building, and the third chapter will discuss fundamental technology infrastructure building.

2. Economy Driven Ecosystem Model

2.1 Model Introduction

Current user situation is as follows:

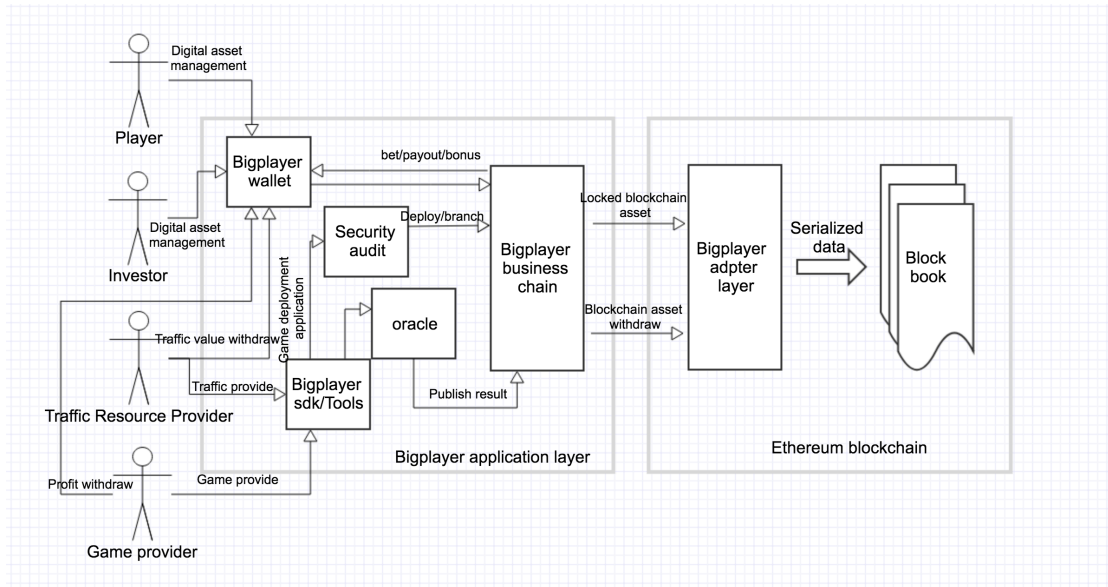
Player: online gambling game player and potential player group

Game provider: supplier group that provide game platform

Traffic resource provider: individual or group who own traffic resource

Investor: BPN long-term holder

Bigplayer Network developer: Proposal implement party, mainly aim at promoting Bigplayer Network platform ecosystem



2.2 How to apply

Player: Players manage their digital asset safely through Bigplayer Network Wallet, insert large amount of resource by providers for entertainment. The fairness of game content are audited and deployed by Bigplayer Network, once been deployed, it cannot be changed and the business logic is transparent. Game asset payout standard operates on blockchain through Bigplayer Network. Neither Bigplayer Network, nor the game content provider can interfere. Asset pays to players in their wallet, which is secure and reliable. For players, the whole entertain process only is to provide a series of wallet addresses, perfectly protects their privacy.

Game platform provider: Through SDK provided by Bigplayer Network, one could realize decentralized gambling games (no need to know blockchain). Therefore one could grab the digital asset market share and can attract traffic by using the high quality users on the platform. In the end one can achieve win-win situation by profit sharing.

Traffic resource provider: one can get value from traffic fast and conveniently through the tools provided by Bigplayer Network platform. One only needs to

focus on traffic acquire, no longer need to rely on company or group to cash out traffic. In addition, Bigplayer Network is anonymous and safe.

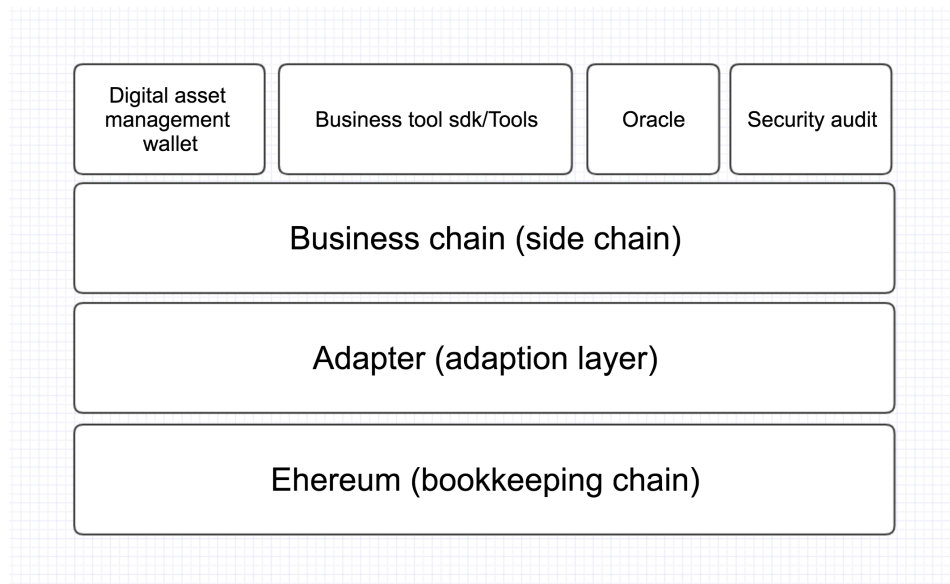
Investor: investors have tokens from Bigplayer Network wallet, and receive profit sharing of 90% of the commission from platform players' every accumulated bit. To guarantee the token's value, and to avoid token value fluctuation from speculation, token holders could discuss the detailed profit sharing plan by way of voting.

Bigplayer Network developer: Developers develop and maintain Bigplayer Network platform. Actively engage in technology innovation, aim at providing a decentralized, safe, reliable and low cost gambling solution platform.

3. Bigplayer Network Technical Structure

3.1 Structure Introduction

Currently blockchain is experiencing a colink fever, we believe that in future there will be a better colink. But Bigplayer chooses another brand new thought, it applies base bookkeeping chain+business chain multi structure, and make the base chain adaption can switch to low cost bookkeeping chain at any time. Consensus build up are for bookkeeping layer to realize, and more focus are on business layer to achieve a better fit situation for gambling business, which make gambling dapp cost reduce to the lowest.



3.2 Bookkeeping and Adaption

At present large amount of colink project come out, each has its own characteristics. For example ETH, NEO, BTM, QTUM, EOS and so on. But the only large-scale application that falls to the ground is ETH. So Bigplayer Network primarily chooses ETH as its first bookkeeping chain. Should there is a better colink to switch costless in future, Bigplayer Network particularly abstracts the concept of adaption layer. At adaption layer it encapsulates different blockchains to API that fit for blockchain, when it need to switch base bookkeeping chain, one only needs to encapsulate the relevant adaption layer. This has largely reduced the risk and price of switching bookkeeping layer, which also make Bigplayer Network flexible. Certainly this method requires to meet certain technical requirements, which need blockchain that support Turing complete smart contract.

3.3 Business Chain

At present what blockchain has brought decentralization, trust and consensus also has their limit, such as scalability, delay and transaction fee. In the next we will discuss how to cope with these questions and the game business.

3.3.1 Scalability

the character of blockchain of unchangeable determines what has deployed at smart contract cannot be changed. This has make maintenance afterwards difficult however. If update, one has to abolish the smart contract that has been deployed, set new smart contract. In the end switch business to new smart contract. Every update basically means a redevelopment and migration, which cost hugely. Bigplayer Network's idea is to abstract the common functions in terms of bookkeeping and relative to realize in adaption layer, uncoupling business. To realize different game businesses at business chain, when business changes, one could through friendly bifurcation to achieve business chain change, therefore to get scalability.

3.3.2 Delay

the decentralized distributed blockchain transaction system and centralized trading system is slow. For example every 10 minutes bitcoin generates a block TPS (Transaction Per Second) which is about 3-5 transactions. Ethereum every 15 seconds generates a block TPS which is about 15-20 transactions. To complete one transaction on blockchain maybe has to wait for a few minutes to confirm, this has largely decline user experience and adaption range. Therefore improving TPS is very important. Bigplayer Network reduces confirmation waiting time through RAS channel that set between player and platform. The logic under RAS channel is like this: the two party or multi party submit initial status, using signed information to transact off chain, finally submit final result on chain through the second transaction on chain. The speed of off chain transaction is far slower than on chain, therefore once player set RAS channel, transaction speed will remarkably improve. One only needs to wait for confirmation when channel set and close.

3.3.3 Transaction fee

the transaction fee of blockchain fluctuates. It changes in terms of the throughput situation of the whole chain. At POW block mechanism, miner will primarily pick the transaction that cost higher. So when reaching the limit of blockchain transaction, it needs a remarkable transaction fee to complete a transaction. Such as bitcoin transaction today, the transaction fee cost more and more. So the Ethereum makes no difference, by competing on transaction priority result to even higher transaction fee and longer confirmation time. This is quite bad for a decentralized and reliable platform. Bigplayer Network's way will reduce transaction fee to certain level. One only need to pay for consensus when RAS channel set and close, however during the channel operate is totally for free. Therefore the longer the RAS channel keeps, the less the transaction fee is.

3.3.4 Game business

We could realize different business logic through smart contract, and deploy on chain. But this could cause problems like unscalable, delay and transaction fee we mention in the previous chapter. It can be solve right away by trying to use RSA channel concept. Let us reduce channel attender, only banker and player one on one channel. Image every play is an assemble make of from few steps of transactions, every step can break into status and action. Action updates status, action can be like button press, game result come out and so on. First, gambling game rule is certain and the logic is clear and simple, naturally suit for matching state machine.

For example a sport match bet.

State: teams that are matching, bet status, if the game is over or not

Action: bet on one team or game result has come out

State machine needs to know two things:

- a. Testify whether the action is legal

Is the game over?

Is the bet within the limit range?

Do I have enough bet quote?

b. State update

Record amount that has bet already

Pay out in accordance with odds when game finish

Therefore one bet on a sport match through state machine

During the bet, bidding asset is locked in the contract, only by contract can transferring money work, which guarantees game fairness.

3.4 Oracle

Smart contract regulates blockchain world, while Oracle is the bridge to connect blockchain and reality. Oracle doesn't generate data by itself. It only migrates data from reality to blockchain. Smart contract operates in the sandbox of blockchain, in sandbox smart contract cannot read data outside the chain. But some smart contract has to start from external conditions.

Still take a sport match as an example: when team A win, every bet on team A payout 1.3 times of the bet ect.

Realization Principle: Transfer money from one given address, and record the match result on the trade comment, so that the smart contract can get real world match result through trade from given address. From Oracle one can migrate data to blockchain, but some data are not certain. Those uncertain data need a set of mechanism to generate a reliable data result. Bigplayer Network plans to realize the basic function of Oracle, break the wall of reality and blockchain

communication. The second step is to research on decentralize autonomous Oracle. The idea is to combine arbitration with interest binding. Suppose one result of a match: Bob spent 10 tokens to announce the result that the team A won. But Tom has questioned the results of Bob. Tom can spend 20 tokens to change the result to team B won. Grace also questioned the result of Tom, so she spent 40 tokens to change the result to team A won. No one question the result since then, so Grace and Bob share the 20 tokens from Tom. The basic rule under this is: everyone has the chance to publish result only once, and those who question the current result can pay twice as much to republish the result. As doubt occurs, the price of questioning is increasing, and revenue is decreasing. This will lead to more and more cautious result, and the cost of counterfeiting is higher than revenue. No one will be willing to pay for the wrong result, and competitions will eventually generate results. The tokens issued with incorrect result will be taken away as punishment, and the correct result publishers share the taken away tokens as reward. This is a positive incentive for early publishers of the correct result, and a high return can be obtained at a small cost. Of course, these discussions are still at the theoretical stage, and some logical branches need to be sorted out.

3.5 Asset Management Wallet

Bigplayer wallet is the entry of Bigplayer Network platform. Every attender of Bigplayer Network ecosystem needs to manage their assets safely and convenient through it. Also, it needs to break through other digital assets and BPN value switch from the wallet part.

The function of the wallet include:

- a. ETH and ERC20 token asset management
- b. BPN and other digital asset exchange
- c. Bonus management
- d. Traffic income receive
- e. Game platform entry

3.6 Business Tools

There are two types of business tolls, one is SDK from game platform provider, another is traffic attracter tool Tools from traffic holder.

SDK aims to provide a standard tool to support game platform provider for game migration. It also encapsulates the common parts of gambling business, such as payment and sharing. Achieve the goal of quickly integrating into Bigplyer Network platform.

The purpose of Tools is to accurately and conveniently label the traffic sources and to settle them in the Bigplayer wallet according to the revenue generated by the source traffic. Provide traffic effect statistics, revenue statistics and revenue-withdrawn function.

3.7 Security Audit

As more and more projects use smart contract, the safety of the contract has been paid more and more attention. The purpose of this module is to help content providers examine business logic and avoid loss from contract flaw.

It can break into those steps:

- a. Audit summary: fast look up contract to check obvious problems
- b. Simulation attack: overflow attacks, reentrant attack, replay attack.
- c. Vulnerability detection: detection of known vulnerabilities in contracts.

And maintain the real-time performance of the vulnerability library.

- d. Audit report: standardized feedback on audit results.

4. Risk Disclaimer

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