
XPLAY Tech

Operation of Blockchain, Use of Digital Currency,
Artificial Intelligence

Technology Solution of Entertainment Media

Commercial Technical White Paper Ver.1.0



XPLAY Extreme Entertainment Holding Company

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Start

This version of white paper is the advanced edition of business to business service plan based on the Technical White Paper V2.0. It will further introduce the issues and market pain points faced by the present pan-entertainment industry and explain how XPLAY Tech uses blockchain, digital currency, and artificial intelligence to assist the industry to solve the related problems and advise on the multiple applied scenarios.

Regarding the blockchain, XPLAY Tech utilizes the patented technology of InfiniteChain to design X-Payment Module for commercial use which includes the following advantages:

1. Multichain mode of main blockchain together with several side chains.
2. Combining the existing centralized business scenarios and the agent mode and retaining the equivalent value of the decentralized information.
3. Decentralized auditing technology.

XPLAY successfully issued the digital currency, XPA, through ICO in August 2017, with 1 billion tokens sold in the first round, which is equal to USD10 million. XPA is used for the pan-entertainment industry including stream media, live broadcast, and content transactions with the ERC-20¹ token standard to benefit the docking on Ethereum blockchain for payments, transactions, or other smart contracts in the future.

Artificial intelligence is also one of the main technologies of XPLAY Tech, which involves developing several function modules to assist content platform providers in the swift interface of related services to lower the development costs and further effectively create profits.

¹ ERC-20 Token Standard : https://theethereum.wiki/w/index.php/ERC20_Token_Standard

1. XPLAY Solution v.s. Current Market Issues

1.1 High Transaction Fees of Cross-Border Payments

The digital contents including video and audio files, digital articles, music copyright, and all kinds of digital assets are sold among different countries through the connection of internet. However, the existing method of selling the following common third party cross-border payments through B2B or B2C has the same problems:

1. High transaction fees
2. Lack of complete cross-border payments
3. Currency exchange differences

The digital currency module of XPLAY Solution by XPLAY Tech can perfectly solve these problems and save clients' operating costs.

	Stripe	Braintree	Paypal
Price	USA 2.9%+\$0.3USD HK 3.4%+\$2.35HKD	USA 2.9%+\$0.3USD HK 3.4%+\$2.35HKD Additional 1% for multiple currency exchanges * No transaction fee under USD50,000	USA 2.9%+\$0.3USD TW 3.9%+\$10TWD
Supporting Country	25 countries excluding Taiwan but including Hong Kong and Singapore	46 countries excluding Taiwan but including Hong Kong and Singapore	202 countries including Taiwan (Taiwan: only cross-border payments allowed; no domestic payments)
Currency	139 currencies including NTD	130 currencies including NTD	26 currencies including NTD
Payment Method	Credit card, Apple Pay, Android Pay, Alipay, American Express Checkout, Bitcoin	Credit card, Apple Pay, Android Pay, Paypal, Bitcoin, venmo	Paypal as the third party payment provider itself and supporting credit card while Braintree and Stripe as the

			service provider of integrated payment flow
Chargeback Fee	\$15 USD	\$15 USD	\$10 USD
Refund Fee	0	0	\$0.30 USD

1.2 Lack of Protection in Transaction Privacy

At the age of internet, the dissemination of contents and the protection of personal information are both important issues. For consumers, the blockchain technology used by XPLAY Tech guarantees the privacy of consumption details and protects personal information. For content providers, the transaction privacy ensures account management and avoids unreasonable taxation or transaction fees.

1.3 Difficulty in Digital Content Asset Management

The digital contents, which is different from the traditional physical assets, are easy to transmit, easy to modify, and copyable because of the progress of internet. However, they lack scientific management and protection. On one hand, it is difficult for the authors to prove the originality of their creative work. On the other hand, it is also not easy for the clients with particular requests to objectively evaluate the value of the creative work. In addition, some of the authors focusing on the niche market often give up on the management of authorization since it is hard to claim copyright and manage authorization. This has undoubtedly greatly influenced the industry's capability and possibility of creativity.

1.4 Unsynchronized Translation of Global Multiple Languages

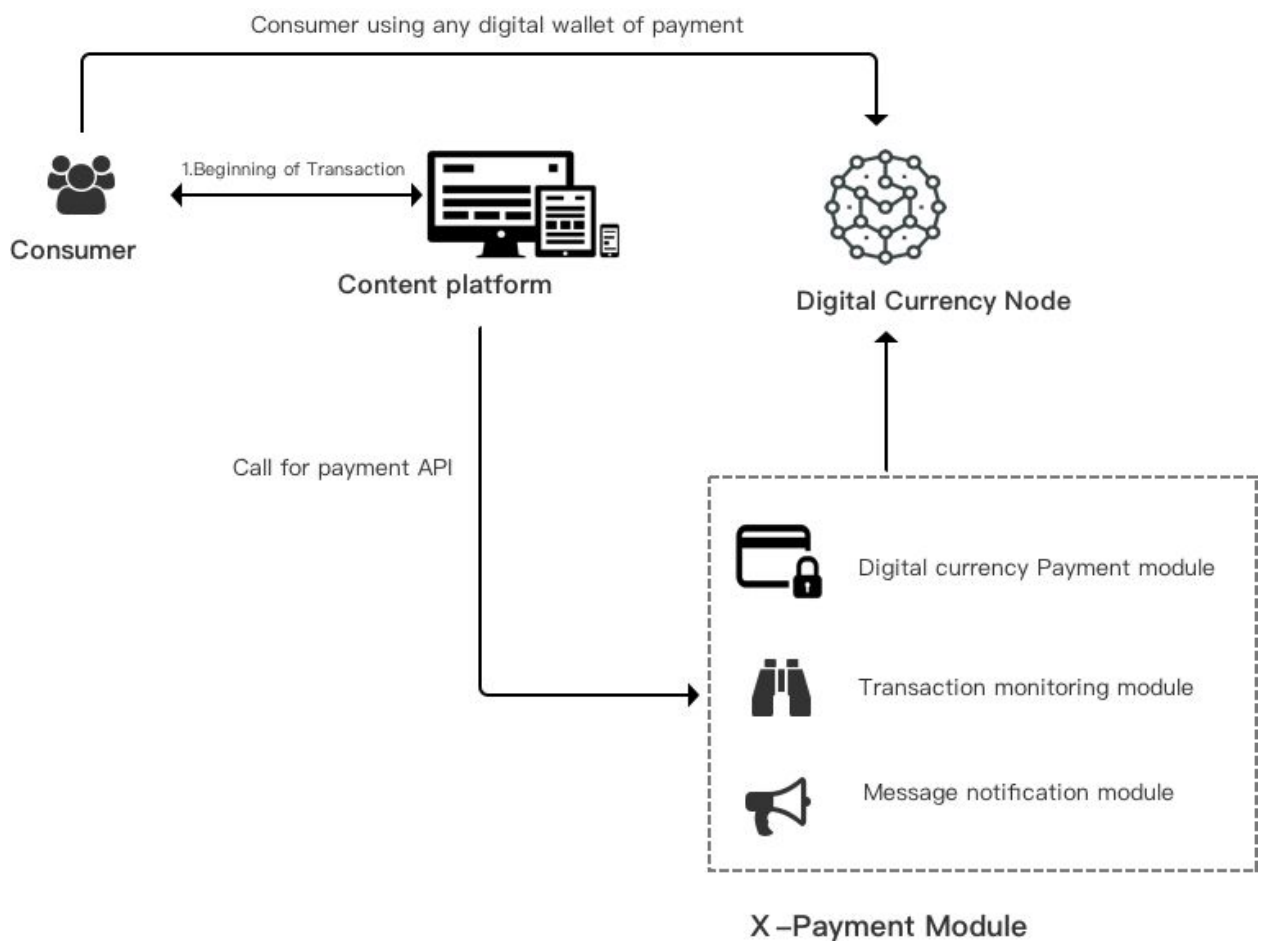
With the expansion of global internet, the publishing of digital content is still in need of the local language in each country even though English is the international common language. When the content that a user wants does not provide translation, it will prevent him from using the website or affect the entertaining element.

2. Explanation of XPLAY Tech Technology

In this section, we will explain how XPLAY Tech applies the operating method of multiple blockchains and artificial intelligence to solve the pain points faced by the current industry and further analyze the ten main technologies in the [Technical White Paper V2.0](#) with new technical extension.

2.1 XPLAY Tech Digital Currency Payment Flow Module: X-Payment

X-Payment is the payment flow module especially for the digital currency and compatible with ETH, BTC, XPA, etc. It not only provides the most advanced third party payment technology with privacy and security but also includes the streaming agreements required by content platform providers and the anonymous wallets required by users.



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- Digital currency payment module: This is an independently concatenating digital currency payment module. The firmware technology uses the multichain structure of InfiniteChain (Note 1), which consists of main blockchain and dynamic side chains. The auditing involves all parties in the transaction to assist the inspection of every transaction record. At the same time, the block recording the transaction details is protected under a special mechanism, which only allows certain nodes to decrypt detailed information. The auditing is completed by the third party without the disclosure of account details and guarantees the correctness of each payment while ensuring the privacy of operating information.
 - Transaction monitoring module: It will track exchange rates and immediately uses email or online messaging to notify currency holders.
 - Message notification module: This is a notification system of all types of payment flow warning messages.

2.2 XPLAY Tech Blockchain Copyright Management Technology: X-Trust

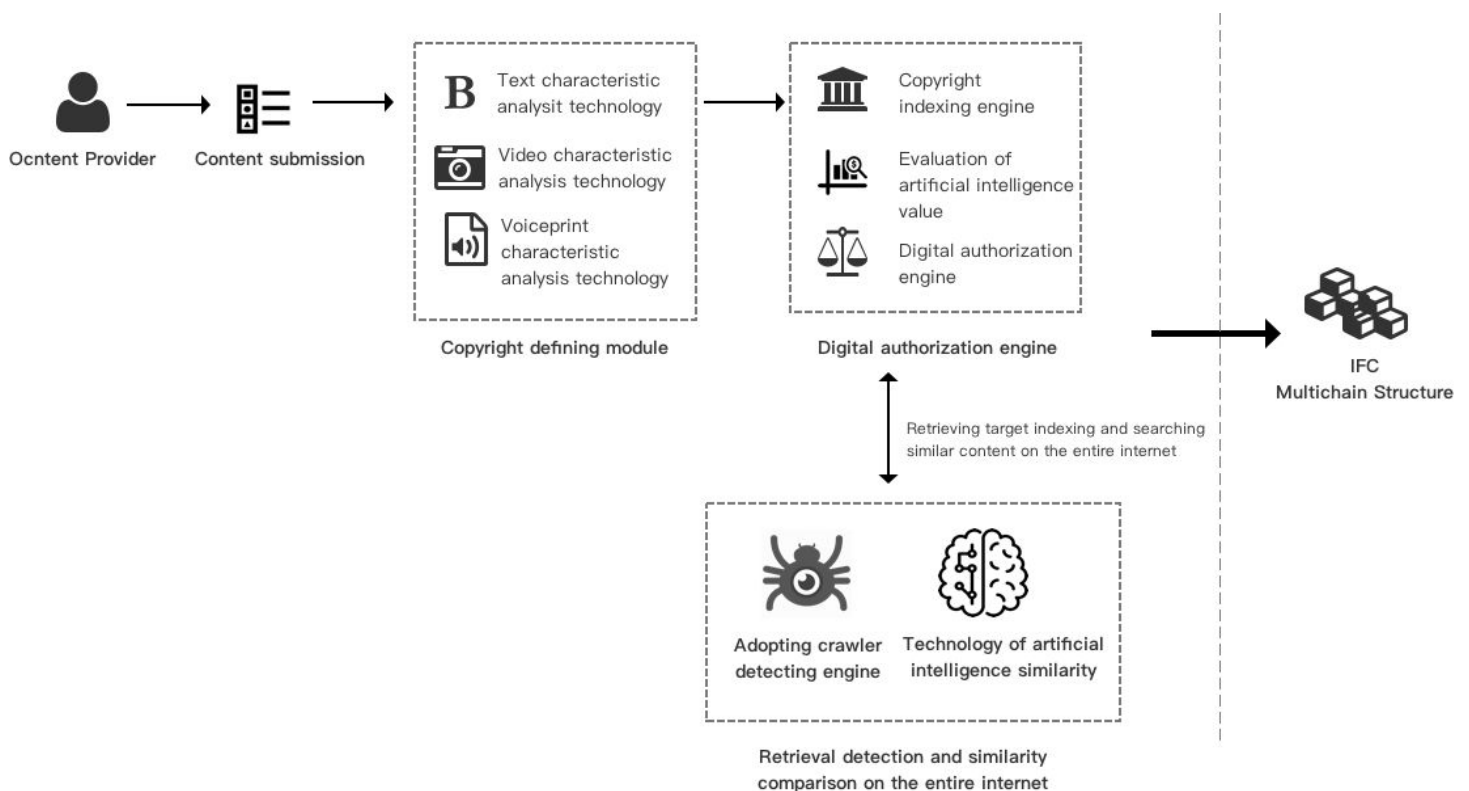
X-Trust is a copyright system combining several technologies specialized for digital content creation. We use the advanced indexing technology to analyze each digital content including the analysis of each section of the texts and the audio and video characteristic of each clip and register these digital assets on the blockchains to increase the trust between the transaction and the content providers. This technology contains the following function modules:

- Digital collection module: using **CBMIR² (Content Based Multimedia Indexing and Retrieval) to execute global copyright filing of digital contents and establish characteristic indexing using text and audio features for content copyright comparison.**
- Digital authorization module: using decentralized auditing technology under the basis of profit sharing of smart contracts.
- Digital asset characteristic identification module
- Internet scanning and piracy detection module: using web crawler technology and characteristic comparison technology to scan entire internet and detect piracy.

Furthermore, to solve the situation when a large quantities of contents are simultaneously written on the blockchains resulting in the possible misunderstanding of malicious attack or the increase of bandwidth and transaction costs, XPLAY Tech adopts of the interfacing of

² CBMIR: <http://univagora.ro/jour/index.php/ijccc/article/view/409>

IFC³'s Off-Chain, which is the application of the uneditability feature of the blockchains' decentralized account books for Proof of Existence and Possession, PoEaP. The original blockchain concept is to put on the public ones, but the transaction bandwidth is limited. Usually this is done by compression using the Merkle Tree to generate root hashes and put them on the blockchains. This can be viewed as the account books of Off-Chain. Although most account information is not directly on the blockchains, the root hashes can be used to verify whether the inquired information is on the Merkle Tree account books.



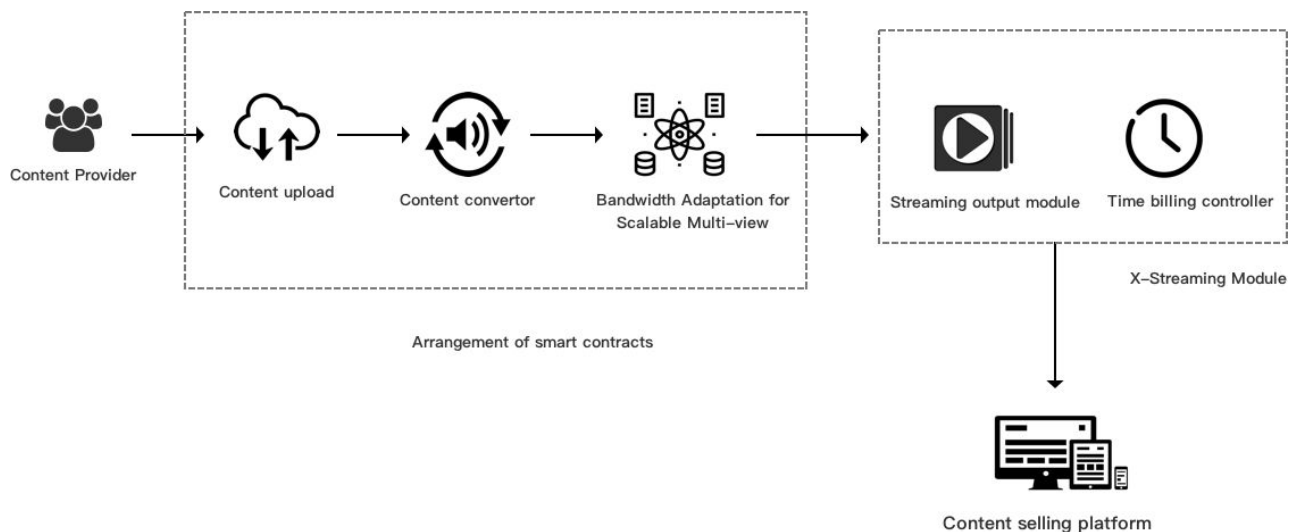
As long as the content providers and publishers, whether they are personal or business users, upload their copyrighted digital contents to XPLAY's platform through X-Trust, they will obtain the copyright registration on XPLAY Tech's blockchains. X-Trust will also use characteristic indexing and signal encryption technology to begin backup protection, copy prevention, copy control, and other relevant protection measures to prevent the contents from being randomly edited and avoid harm to the legal rights of the copyright law..

³ IFC White Paper: http://infinitechain.io/doc/ifc_whitepaper.pdf

2.3 XPLAY Tech Streaming Technology: X-Streaming

The high costs of bandwidth and copyright have become the biggest part of the operating expenses for content websites or content providers. They can account for 50% to 70% of the operating expenses.

X-Streaming has defined a new type of authorization possibilities for the video and audio streaming of digital contents. We integrate the concept of time into the authorization mechanism, which is different from the traditional authorization mechanism of individual files so that the digital content streaming will adopt diverse types of authorization and combination of creative work.



Service features:

No prepayment: Reasonable prices are available without the commitment of usage amount. On the average, 60% of the costs will be saved.

Charge by usage amount: The payment is charged by the actual usage amount. Money is saved while focusing more on content innovation.

No termination fee: Once the service is shot down, there is no need to pay any service fee.

Time billing streaming player is the first applied scenario based on X-Streaming.

The payment of video and audio service is calculated by the usage of time. XPLAY Tech will keep developing related technologies and work with other companies to create more applied scenarios.

2.4 XPLAY Tech - AI Artificial Intelligence

XPLAY Tech's artificial intelligence technology is based on the neural network algorithm and deep learning techniques and has launched a multi-language human and machine translation platform assisted by the blockchains that continue intelligence evolution so that the users can break the language barrier, the visual stimulation is enhanced and more efforts are made on the visual experience of digital contents. Moreover, based on the logic of group cooperation of their wisdom, human intervention, modification and comparison are adopted to increase the correctness of translation.

Because of the innovative artificial intelligence technical structure, XPLAY Tech has achieved the goal of enriching the media and digital content user experiences.

- (1) Automatic Speech Recognition/ ASR⁴: the speech recognition platform provided by big data and deep learning

The main goal of Automatic Speech Recognition is to convert human's speech contents to corresponding texts through machine learning.

ASR applied by the XPLAY Tech emphasizes the voice recognition of media contents and the interaction in specific scenarios.

- (2) Machine Translation

In general, the public use machine translation to understand the main idea of the original sentences or paragraphs instead of the precise translation. At present, some companies attempt to manage the multi-language support of their service websites with the help of machine translation.

Nevertheless, XPLAY Tech aims at the specific or professional fields with customized assistance, narrowing the scope to the terminology of specific fields to improve translation.

⁴ ASR White Paper: <http://support.docsoft.com/help/whitepaper-asr.pdf>

In addition, the people determined to devote themselves to language translation will be invited to establish an exclusive social network through XPA and credit rating.

(3) Text-to-Speech/ TTS

TTS⁵ mainly refers to synthesize human speech, convert text messages to speech data, and play the audio files. Its purpose is to use the machine to read the text, and its goal is to make the machine voice clear, audible, and natural.

Speech synthesis is related to several disciplines such as sound, linguistics, digital signal processing, computer science, etc. The research on speech synthesis technology has progressed for years, but what made it truly practical was the new development that came with the technological advancement of computer and digital signal processing. During the development of speech synthesis technology, the early stage of research was made by using the parameter synthesis, followed by the formant synthesis with the advancement of computer technology.

The function module can be divided into text analysis, prosody modeling, and speech synthesis.

The speech synthesis is the most basic and important part of the TTS system. To sum up, the main function of speech synthesis is to use the result of prosody modeling to retrieve the corresponding speech primitives from the original speech corpus, then employ the specific speech synthesis technology to adjust and modify the speech primitives' rhythm, and finally synthesize the speech that meets the standards. The speech synthesis technology has evolved step by step from the parameter synthesis, the formant synthesis to the gradual combination of the two. The force that has aided its continuous development is the human's raising cognitive level and needs.

The common speech synthesis technologies include resonance synthesis, LPC synthesis, PSOLA synthesis, and LMA channel model technology. During the process of application, several technologies are combined organically or the advantage of one technology is applied to another technology to overcome its deficiency.

XPLAY Tech focuses on the specific scenarios or people (news and entertainment) and sets up a larger quantity of real pronunciation examples through deep learning to reinforce the final user experience.

(4) Optical Character Recognition/ OCR

⁵ TTS(Text-to-Speech):https://en.wikipedia.org/wiki/Speech_synthesis

OCR⁶ refers to the process of analyzing, identifying, and processing of the image files of text information to obtain text and layout information. The most significant issue of OCR is how to debug or make use of the assisting information to elevate the percentage of correct recognition. Technologies like ICR (Intelligent Character Recognition have thus invented). The major indicators to assess the quality of a OCR system include false rejection rate, false acceptance rate, recognition speed, friendliness of user interface, product stability, easiness of use, feasibility, etc.

XPLAY Tech employs this technology to process the subtitles, popups, and background keywords of streaming.

(5) Automatic Face Recognition/ AFR:

AFR⁷ refers to the computer technology that analyzes and compares the information of facial features for identity verification.

Broadly speaking, AFR includes a series of related technologies that construct the facial recognition system such as facial image collection, facial positioning, preprocessing of facial recognition, identity confirmation, and identity inquiry. To be more specific, AFR especially refers to the technology or system that uses human faces for identity confirmation or inquiry. AFR is a very popular research field for computer technologies and belongs to the biological feature recognition technology that detects the biological features of organisms (mostly human) to identify biology entities.

XPLAY Tech applies AFR to a large quantity of scenarios including system registration, identity recognition and verification in streaming media, processing of chat details, indexing and connection of media database, and deep learning materials.

(6) Voiceprint Recognition/ VPR:

VPR⁸ is also called speaker recognition including speaker identification and speaker verification. Different scenarios apply different VPR technology. VPR converts sound signals to electric signals and then uses computer to identify.

XPLAY Tech applies VPR to a large quantity of scenarios including system registration, identity recognition and verification in streaming media, optimization of audio chat details, indexing and connection of media database, and deep learning materials.

⁶ OCR Intro: <https://www.abbyy.com/en-us/finereader/what-is-ocr/>

⁷ AFR: http://biometrics.cse.msu.edu/Presentations/AnilJain_FaceRecognition_KU10.pdf

⁸ VPR: <https://www.google.com/patents/US6356868>

3. XPLAY Tech Applied Scenarios

The digital contents are vastly transmitted with the expansion of internet. However, how to highlight the value of digital contents has been discussed from different aspects. It involves copyright protection, digital collection, trading speed and transparent auditing. It will certainly play a vital role in the pan-entertainment industry applications.

XPLAY Tech provides solutions for content payment, micro-payment/ mobile payment, time/ resource consumption payment, social media transfer, offline consumption, and digital collection authorization.

Content Payment

In the scenario of content payment, content providers or platform providers all face the problems of non-transparent account verification, lengthy waiting period of receiving payments, and processing fee charged by banks. If the trust mechanism interfaced with the blockchains can replace the traditional transaction with the multichain structure of blockchains, the transaction time will be shortened and the billing transparency among the buyer, seller, and agent platform will be ensured. Each party can only see their own relevant records in accordance with their own authority. Thus, swift transaction and privacy will be both achieved.

Micro-payment/ Mobile Payment

The latest research made by Topology Research Institute of TrendForce Corp. indicated that in 2016, smartphone companies keep establishing their own payment systems. All types of payment methods are also developing vigorously, increasing the business opportunities of global mobile payment. It is estimated that in 2017, the global mobile payment market will reach USD\$780 billion with the annual growth rate of 25.8%.

Consumers begin to use micropayment or mobile payment to replace the paper bills or several credit cards. The feature of blockchain's massive recording enables the recording of micropayments on the blockchains. The function of decentralized auditing can be used to protect the consumer privacy.

Time/ Resource Consumption Payment

Nowadays, more than half of the world's population uses internet. Furthermore, the population using internet has been growing. In the last 5 years, 80% of the world's population uses internet. This year the number has reached to 354 million with the increase of 20 million users compared to last year's 332 million. At the same time, more than 90% of the global internet users use smartphones to go online. However, because of the high density of internet access, internet users' time and viewing contents have been fragmentized. Lots of people can not use up the stored value they added at one time and therefore the resources are wasted. Charging the contents and the video and audio streaming by the time and resource consumption will add substantial value to users' every minute of use. Big data can be used to analyze which contents have a higher value because of the purchase of users.

Social Media Transfer

In this era when a social network application can claim an astounding market value, social network applications seem to become a bit "omnipotent". For those businessmen who often travel to different countries and people who enjoy traveling around the world, nothing can be better than being able to make transfers among countries at ease through a social network application they use daily.

When making a transfer in a social media through the use of an anonymous wallet constructed on the blockchain, the transaction security and trust will be enhanced through RSA encryption. Besides, Private Key can replace Open ID to login to a social media to further achieve privacy protection.

Digital Collection/ Copyright Management

With the advancement of internet today, it is easier to directly locate the literature or video and audio clips or through the use of the search results compared to the past. While it is convenient to retrieve the contents, the disputes over copyright have begun.

Through XPLAY's X-trust, the contents that require copyright can be indexed characteristically and the copyright will be registered on the blockchains. The citation frequency is also reflected in the big data so that the contents truly possess collection value. At the same time, the source of piracy is detected in the global network based on

the character indexing and through the crawler engine technology to protect the legal copyright and the right of authorizers and authors.

Offline Activities

Anonymous wallets incorporating the decentralized auditing technology enable offline consumption scenarios to extend from the tradition legal currency to the digital currency, safeguard the consumer privacy and the transparency and fairness of service providers' account books, and ensure rapid currency exchange. For example, scalper tickets or under-the-table ticketing for movies, exhibitions, concerts, and real-life activities will be eliminated through the importing of anonymous wallets.

Note 1: InfiniteChain - Application of Multichain Structure

XPLAY Tech applies IFC's patented multiple blockchain structure as illustrated in Picture 1.

The multichain refers to the combined operating mode of the main blockchain and several side chains. In general, the transactions that do not require a high speed operation such as encrypted currency transactions or single contract recording are directly sent to P2P network and eventually fixed on the main blockchain by the nodes that have become the blockchain producer. Yet, the transactions that require mass production or centralized matching are first operated on the side chains and eventually produce the root hashes which are sent to the nodes in P2P network and fixed on the main blockchain.

The operation of side chains is very fast and will accumulate a large quantity of transactions after a period of time. The auditing nodes responsible for the decentralized operation in the side chains produce the root hashes and related identifiers, which are then sent to the nodes fixed on the main blockchain. The entire IFC's structure of multiple blockchains contains "ordinary nodes" (the nodes as follows) and "auditing nodes" in charge of the decentralized operation of main blockchain and side chains.

