



PUBLISH

Blockchain-based digital news ecosystem solution for publishers

PUBLISH, Inc.

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I. Abstract

The migration of newspaper newsrooms from the traditional to the digital democratized the way news is produced. However, with centralized global social media platforms taking over as the primary outlet for news consumption, securing financial viability while retaining journalistic integrity has become a formidable challenge for most of the digital newspaper and magazine businesses. PUBLISH aims to empower the press through blockchain technology, especially as it relates to tokenization, platform gamification, and information authentication and verification. By doing so, PUBLISH offers a solution to the problem of fragmented readership and declining advertising revenues.

II. Purpose

PUBLISH aims to establish a blockchain-based digital news media ecosystem through increasing the credibility of news and expanding news media subscribership. PUBLISH protocol presents a new business model for the news media industry, combining a unique token economy that contributes to the financial independence of news media companies through a steady influx of subscribers and an increased demand for advertising. It contributes to the growth of the news media ecosystem by utilizing blockchain, artificial intelligence, and big data to allow for informational diversity and the pursuit of truth - the two fundamental pillars of journalism. PUBLISH aims to expand its relationship with news subscribers through research and development of core blockchain technologies and by presenting a fair token compensation system to ensure transparency and active participation of all actors throughout the entire production and distribution processes of news content. PUBLISH's solution is not limited to the digital news media industry; it aims to expand into the media and entertainment industry through strengthened relationships with digital content consumers.

Introduction

With roots in journalism, PUBLISH provides a solution for ensuring the sustainability of the news ecosystem. NEWS token is a utility token that drives TokenPost, the world's first Korean blockchain & cryptocurrency news site that integrates PUBLISH protocol, and will be expanded on the foundation of PUBLISH alliance. NEWS token's range of applications is not limited to publishers and the media industry but can also be used in the entertainment industry. At the time of writing, PUBLISH alliance contains 40 members.

PUBLISH protocol supports the circulation of a token economy geared towards publishers that runs on an inflow of monetary value. It consists of a reward system to incentivize readers to participate in the ecosystem and become involved in the process of news publication and

consumption. Publishers adopting this token economy can increase their financial stability, help restore journalistic objectivity, and ultimately contribute to establishing a healthier news media ecosystem [1].

Like other blockchain-based news-related projects, PUBLISH's solution systematically protects against infringement of intellectual property rights, censorship, and misinformation. PUBLISH advocates a decentralized business model that incentivises advertisers and grants publishers full control over what is published.

PUBLISH has been providing digital solutions to news media companies since 2018 and continues to invest in the research and development of various blockchain-based business models. PUBLISH has been recognized for its work in the media industry by renowned organizations including WAN-IFRA, the Korea Press Foundation, the Ministry of Science and ICT, the Korea Information and Communication Industry Promotion Agency, and many venture capitalists. The company has also been selected by several acceleration programs including those of Draper University, LongHash, and Yozma Group Korea, which operates overseas venture capital and accelerators.

PUBLISH plans to develop several tools and applications to support the growth of the PUBLISH ecosystem. These include PUBLISHsoft, PUBLISHwallet, PUBLISHfactcheck, and PUBLISHid.

III. Background

PUBLISH is a global technology media company with a mission of securing the editorial and financial independence of digital news and magazine businesses, especially as it relates to content management, tokenization, platform gamification, and information authentication and verification. TokenPost, a digital-native news outlet and a sister company of PUBLISH, will serve as PUBLISH's first use case with NEWS token as the official token utilized within TokenPost. TokenPost, therefore, serves to illustrate everything PUBLISH has to offer in its current development phase.

PUBLISH has been awarded the 2019 Best Digital News Startup Award from WAN-IFRA, a global newspaper association, for the issuance of NEWS tokens and PUBLISHsoft in the first quarter of 2019, and continued success in technology development and business strategy.

Market overview

A booming digital advertising market

Newspapers have traditionally relied on revenue from print advertising and subscriptions, but over the years the industry has seen a transition from a print-based economy to a digital one [1]. In 2020, the digital advertising market was valued at around \$578 billion and is expected to reach \$762 billion by 2024 [2]. However, the market is dominated by a small handful of large social networks and general-purpose search engines, much to the exclusion of newspapers. According to Facebook's 2020 annual report [3], advertising revenue stood at \$84.17 billion, representing as much as 98 percent of its total revenue for the year and being predominantly driven by mobile advertising revenue. Google took an even larger share of the market with a reported advertising revenue of \$146.92 billion, representing 81 percent of its total revenue [4]. Together, Facebook and Google accounted for approximately 55% of the US digital ad market [5].

Thriving digital news readership

Overall, newspapers are seeing a shift from print to digital modes of consumption. Take the New York Times as an example. According to its 2017 annual report [6], total revenues increased 7.7 percent to \$1.66 billion compared to 2016. This was primarily driven by a significant increase in digital subscription and advertising revenue and only partially offset by a decrease in print advertising.

Advertising revenue for this American newspaper stood at \$558.51 million (33.33 percent of total revenue), a 3.8 percent decrease compared to 2016. This was led by a 13.9 percent decrease in print advertising revenue, which was only marginally offset by 14.2 percent growth in online advertising sales, print advertising still being more important than digital advertising.

However, revenue from subscriptions, both print and digital-only, increased to just over \$1 billion (60.18 percent of total revenue) in 2017, a year-on-year increase of 14.52 percent. While its print newspaper saw a decline in circulation, this was completely offset by an increase in digital-only subscriptions, thanks in part to heavy discounting and attractive subscription bundling [7].

More evidence of the increasing importance of digital subscriptions can be seen with other international publications. At The Washington Post, for instance, year-on-year digital-only subscriptions had more than tripled according to an internal memo acquired by CNN in September 2017 [8]. From 2 April to 1 July 2018, The Wall Street Journal's total print and digital subscribers increased to 2.48 million [9], an 8.70 percent increase over the same 3-

month period the year prior. Digital-only subscribers increased 25.20 percent to 1.59 million over the same period, surpassing print subscriptions, which decreased in number. A shift from print to digital modes of consumption is clear to see.

Being internationally respected publications with readerships to match, however, the New York Times, the Washington Post and the Wall Street Journal may be regarded as outliers able to offset lost revenue from their print business through aggressive monetization efforts. For these outliers, the strategy of selling more for less is a viable option, but the same may not be said of smaller publishers, which do not enjoy the same economies of scale. These small to medium-sized newsrooms, which represent the bulk of the news landscape, have seen an overall drop in revenue led predominantly by diminishing print sales, still the mainstay of the newspaper business [10].

News consumption, especially via digital devices, is nonetheless here to stay. While publishers face intense competition, news in terms of production output and consumer demand remains a market with vast untapped potential. The question, therefore, is not whether news is dying but how best to adapt to and exploit a booming digital subscription and advertising market [11], [12].

IV. The problem - journalism in crisis

The newspaper industry is characterized by decreasing print sales and increasing digital sales. With a few exceptions, increases in digital sales have not fully counteracted decreases in print sales. There are several external and internal factors driving this trend. Externally, newspapers face strong competition from mega-platforms such as social media platforms and general-purpose search engines. Internally, media deregulation and consolidation have eroded the quality of journalism both in terms of diversity and integrity. Together, these forces have worked to undermine the democratic process and the financial viability of independent newspaper newsrooms.

Increased competition

It was once common practice for publishers to sell advertising space on the loyalty of their readers. However, readers were not necessarily loyal; they simply lacked a compelling reason or option to switch over. It was more so a circumstantial indifference that had translated to continuity, not loyalty as complacently sold by the publishers.

Fragmented readership

Today's readers do not opt for a single publication nor choose to passively remain exclusively subscribed to a single publication. Instead, they navigate to news articles via links on a handful of mega-platforms and curation sites like Facebook and Google that produce little to no editorial content of their own. For instance, according to a 2018 survey conducted by the PEW Research Center, more than two thirds of US adults at least occasionally get news from social media platforms, with as many as 43 percent getting their news from Facebook [13]. In the beginning, publishers embraced these platforms to promote their brands and content, but it has become clear that readers often consume content from within these platforms, without visiting the website of publishers. News content distribution has become centralized [14], and quality is often not a primary concern.

Unverified voice and fake news

Perhaps more worryingly, however, is the fact that these mega-platforms have enabled bad actors to distribute low-quality content to the masses, which represents a threat to democracy. Results of a public consultation on fake news and online disinformation conducted by the European Commission between 13 November 2017 and 23 February 2018 show that as many as 99 percent of those surveyed claimed to have been exposed to fake news, most instances of which originating from social media platforms. The same survey revealed that such disinformation is often viewed as harmful to society and as targeting areas related to politics, immigration, health, and security [15]. The internet has effectively enabled any individual, from well-intentioned citizen journalists to ill-intentioned producers of fake news, to become publishers without any meaningful qualifications or reputation.

Unlike an established newspaper newsroom, a bad actor has little reputation to lose. As a result, the public has become distrusting and wary of the media more generally [13]. They lose their appreciation for good journalism and become increasingly indifferent to the publication they read. They hold less accurate beliefs, which has the effect of undermining the democratic process [16]. While a function of the newspaper industry is to inform the public and shine a light on power abuses, this function is being undermined.

But fake news and increased competition are not the only challenges that the citizenry and newspapers are faced with; the media industry is also beset by its own set of problems, namely the erosion of journalism as a public good resulting from media deregulation and consolidation.

Erosion of journalism

“The widest possible dissemination of information from diverse and antagonistic sources is essential to the welfare of the public.” These are the words written by the US Supreme Court Justice Hugo Black in 1945 on blocking a merger between the Associated Press and other publishing companies [17]. He was speaking at a time when efforts to prevent media consolidation were well-supported and valued as positively reinforcing the First Amendment. During the 1980s, a new deregulatory view was brought into the conversation by the Reagan administration, and the Telecommunications Act of 1996 signed by Bill Clinton officially reversed the long-held stance against the deregulation of media consolidation.

The Act allowed near-unlimited corporate acquisition and ownership of media companies, and thus began the capitalistic frenzy of mergers. Most US media was held by just under fifty corporations in the early 1980s [18]. Today, as few as six corporations own over ninety percent of the entire US media industry, a trend which can be seen across the globe. Diversity and antagonistic sources of information, the importance of which was emphasized by Justice Black, have long become a rarity. Relatively smaller independent publishers simply do not stand a chance to make it on their own in the face of increased competition from corporations chasing economies of scale through acquisition after acquisition.

Conformity and censorship

The purpose of journalism is to provide the public with the information necessary for them to make the best possible decisions about their livelihood, societies, and governments. While every medium offers a particular voice and perspective, corporate media and consolidation enforce conformity and suppress views that fall short of a specified range of interest. The oligopolistic dominance enforces ideological conformity and distortion, and the great danger is in that it occurs so discreetly that the formation of critical thought is suppressed without anyone noticing. The sheer number of uniquely branded publishers, broadcast stations and music labels suggest a deceptive impression that there is great diversity. However, there are only as many messages as the number of media conglomerates in the market, and alternative viewpoints are nearly non-existent. Choice then becomes an illusion, feigned diversity, and yet another form of censorship.

Unscrupulous commercialism

Good journalism also presents a voice for the marginalized and exposes injustice, thereby working to hold those in power accountable. When the media is run by business leaders in place of journalists, however, the pursuit of objectivity and truth is generally not a priority. The

longtime mainstays of high-quality journalism, such as investigative journalism that has played a crucial role in driving major social changes, are shunned as they are seen cost ineffective. Clientelist relations dictate what is published, turning the media into a convenient instrument for particularized interest. Publishers have effectively become mouthpieces for their respective owners and are failing to serve and empower the public as the fourth estate as socially bestowed. Deregulation has played a part in spearheading commercial exploitation within the media industry, which in turn has subverted the democratic role and value of journalism altogether. Journalistic integrity is no longer a virtue in the industry, and journalists are forced to give up their conviction in playing the critical role of “agitators” against injustice.

Newspaper closures

Competition from online substitutes and corporate media have resulted in newspaper closures, job losses, and increased municipal borrowing costs.

Decreasing newspaper newsroom employees

Unsurprisingly, the number of employees working in the newspaper industry has declined in line with eroding newspaper revenues and closures. According to a PEW research report [19], from 2008 to 2017, newspaper newsroom employees working in the print news sector decreased by 45 percent, from about 71,000 to 39,000 workers, representing a loss of 32,000 jobs over the period. The digital sector fared far better with jobs increasing by as much as 79 percent, from approximately 7,400 in 2008 to 13,000 in 2017. However, in absolute terms, this modest increase of just 6,000 jobs did not offset the more significant job losses seen among legacy publishers relying on print news.

V. PUBLISH as a solution

In section 2, it was noted that the proliferation of the internet has brought about fragmented news readership. Attracting and retaining steady readership is pivotal to a publisher’s success, but readers have become increasingly indifferent to the publication they read. As a result, publishers are finding it increasingly challenging to maintain relevance and financial viability. To add to this, media consolidation is destroying diversity, and media corporatization is eroding journalistic integrity. What, then, can we do to enable sustainable journalism without compromising the journalistic integrity and democratic role of journalism? How do we address the problem of fragmented readership and publication indifference? How can we cultivate a

media environment where antagonistic and diverse sources of information and views can co-exist and flourish? How do we revive the failing world of journalism? PUBLISH proposes an answer to these questions.

PUBLISHprotocol

PUBLISHprotocol (the “Protocol”) is a blockchain-based media protocol and platform serving to economically incentivize a global cooperation of readers, writers, and editors to join publishers in proliferating good journalism [21]. Unlike other blockchain media protocols, PUBLISHprotocol does not seek to replace the existing digital news media business structure, neither limiting the participation of advertisers nor offering to completely decentralize the editorial process. Rather, it seeks to reinforce the triangle relationship between publishers, readers, and advertisers by empowering publishers to produce high-quality journalistic content through a participatory mode of news production and consumption. In doing so, the Protocol will cultivate a network of independent and financially viable publishers as a powerful deterrent against information asymmetry and the reverberating noise rampant in the current state of media. PUBLISHprotocol is developed in collaboration with PUBLISHalliance, a consortium of over 50 media enterprises, technology providers and academic institutions tasked with the development and proliferation of PUBLISHprotocol.

NEWS tokens

NEWS token is a PUBLISH-based token used within TokenPost and as an exchange token to facilitate the exchange of one PUBLISH-based token for another. A total of 10 billion NEWS tokens have been issued, which will be sold to fund the development and marketing of the project. Of note, 1 billion tokens are reserved for a reward pool, which is used to reward ecosystem participants in the early stages of the project. Participants include publishers, editors, content producers, content consumers, and advertisers

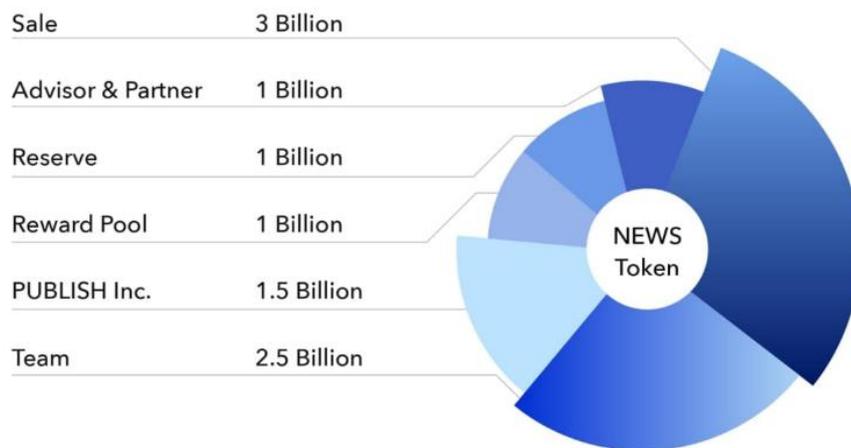


Figure 1: Token distribution

Ecosystem participants: token staking and reward

Publishers. Publishers are independently owned publications with distinctive governance and operational structures in deciding how content is produced and disseminated to the public. While other blockchain protocols assign the role of publishing to lower-level “reviewers” (e.g., DNN) or do away with publishers altogether (e.g., Steemit), publishers within the PUBLISHprotocol ecosystem have the final say as to whether or not an article is published and made available to their readers. The Protocol economically incentivizes publishers in NEWS tokens for verifying the veracity of news content. Specifically, publishers can earn token rewards for submitting content to be fact-checked, for the perceived factual accuracy of the news content they submit, and for their fact-checking work.

Editors. While other blockchain media protocols dumb down the role of editors (e.g., DNN) or do away with them altogether (e.g., Steemit), editors in PUBLISHprotocol’s ecosystem are no less important than other stakeholders. In a typical manifestation, Editors comprise of community editors and regularly paid in-house deputy editors selected by the publisher. Community editors, who are compensated in tokens, serve to expedite the editing process by reviewing submitted news content following a set of editorial standards determined by the publisher. In the case of a news article, for example, this may include anything from marking grammatical errors and pointing out logical incoherence to flagging questionable statements and mistruths. Once a given article has been edited by one or more community editors, it will be checked by deputy editors, who are responsible for publishing the article on behalf of the Publisher.

Content producers. Content producers are individuals with a level of expertise and insight

deemed acceptable by the publisher. Once whitelisted, producers can submit news content items to be reviewed by the editorial committee for the purpose of publication. Producers earn tokens when a news content item is published and when they are tipped by consumers in NEWS tokens.

Content consumers. Content consumers form an essential component of the Protocol's ecosystem. Without consumers, the bilateral trade between publishers and advertisers cannot be established. Content consumers form an essential component of the Protocol's ecosystem. Without consumers, the bilateral trade between publishers and advertisers cannot be established. Consumers earn tokens for visiting a website, consuming news content items (e.g., reading a news article, watching a video), answering comprehension questions in relation to a news content item, following a publisher's social media presence (e.g., by following a Twitter account or subscribing to a YouTube channel), sharing content on social media (e.g., a tweet or YouTube video), and rating or reviewing a publishers product or service (e.g., a news subscription product or mobile application). A Consumer's level of activity and engagement within the ecosystem or with a PUBLISHprotocol-based platform determines his or her rank in the ranking system. The higher a Consumer's rank, the more bonus

Advertisers. Unlike blockchain media projects, PUBLISH does not seek to exclude advertisers from its token economy as they are seen as a vital part of the newspaper business and perform the necessary function of disseminating information to the public about products and services that would otherwise go unnoticed. Therefore, for publishers opting to integrate the Protocol's token reward system into their business (e.g., banner ads, sponsored content), advertisers can be required to purchase their tokens to pay for all marketing-related activities, thereby creating additional demand for tokens.

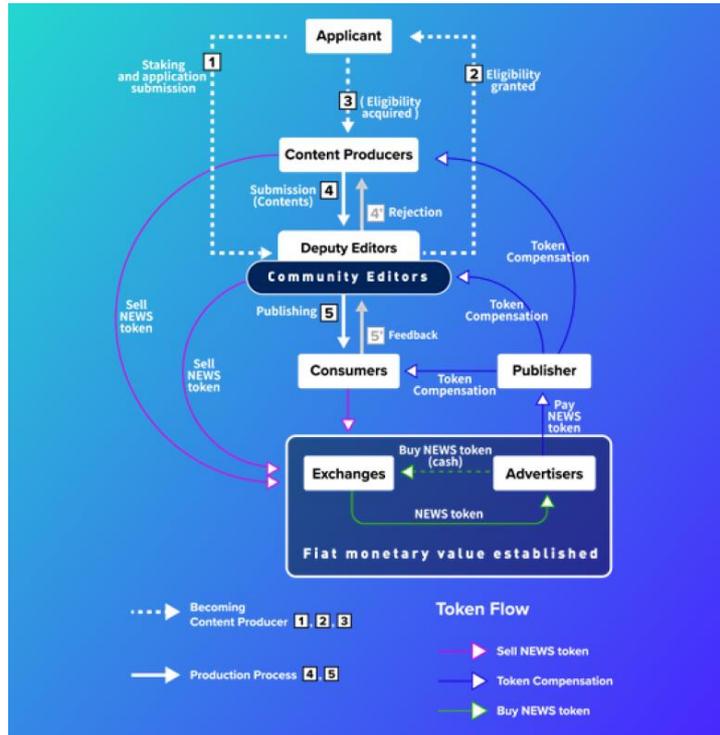


Figure 2: Token economy

Price stabilization strategy

While NEWS tokens can be freely exchanged in the market, NEWS token whales and other ill-intended speculative investors can threaten the price stability of the NEWS token. Price stabilization is further challenged as the overall price of the market is largely determined by key cryptocurrencies such as Bitcoin and Ethereum. To resolve this problem, most blockchain platforms have in place a lock-up mechanism to prevent key shareholders from immediately selling their assets.

However, as this is only a temporary strategy, NEWS token holders will not implement such mechanism; holders will be allowed to withdraw and liquidize their assets anytime. PUBLISH aims to stabilize NEWS token prices by increasing the number of key ecosystem participants who require NEWS tokens to be an active member of the PUBLISH protocol. For example, advertising agencies will need to purchase NEWS tokens as a means of payment to request that their products be hosted on the PUBLISH protocol; therefore, PUBLISH will prioritize increasing the demand of its products.

Reward system

All NEWS token compensations in the PUBLISHprotocol's ecosystem are generated by the NEWS token reward pool (refer to Section 3.1.1). When the initial number of tokens allocated for the reward pool becomes depleted, an artificial inflation via additional token issuance will be implemented periodically to replenish the reserve. Instead of relying solely on mathematical prediction, the pool will be operated under careful inspection along with ongoing modifications to secure consistent solvency. To prevent potential depletion of the reward pool, an inflation policy will be enforced to offset the threat of insolvency.

Reputation scoring mechanism

PUBLISHprotocol promises autonomy for onboarding publishers. Unlike other existing blockchain-based media platforms that rely on token holder votes for decision making, publishers retain the role in deciding what gets published. However, to keep all participants accountable, a reputation scoring system will be set in place. Content consumers will be able to evaluate news contents and subsequent deletion and editing of low-quality articles will be decided by Deputy Editors. Implementing such system will enhance the quality of the content produced by the Protocol's publishers.

VI. Technology

Technical abilities and functions

PUBLISH utilizes both on-chain and off-chain technologies. On-chain technology, also known as distributed ledger technology, is used to securely store hypermedia content in a public network composed of nodes and to grant copyright to content creators. Off-chain tokens or smart contracts, which are essentially centralized in nature, represent on-chain tokens in digital format and are used to fairly calculate and distribute rewards within the PUBLISH ecosystem. PUBLISH utilizes off-chain transactions, rather than relatively slow and expensive on-chain transactions, enabling immediate transactions with little cost burden to end-users.

It also uses P2P storage technology through blockchain and Interplanetary File System (IPFS) to permanently store documents or files, and to build a powerful solution that gives copyright to content creators. This allows the PUBLISHprotocol to store articles or any file in a new P2P system without a centralized storage device and enables a powerful core API that prevents any manipulation or deletion through blockchain.

Reward mechanisms. Smart-contract-based incentive models can help create autonomous news activities and subscribers for media outlets. Blockchain technology can provide fair and continuous rewards to all participants participating in the platform.

Data security. All news media contents submitted by the creator and published by the editorial department are stored within the IPFS along with hash values of files securely encrypted within the blockchain network. The two-step storage provides high-quality protection against the copyright of the creator. Unlike other blockchain-based media projects, PUBLISH can modify and delete content published through digital notarization protocols if an agreement is reached between producers and media companies.

Smart contract. The off-chain smart contract feature built into the protocol is used to identify and store submitted and published articles/posts. PUBLISH utilizes smart contract technology in the production of news content and the token compensation process.

Digital notarization. Digital notarization is used to authenticate the copyright of news content. This allows for encryption and storage of the original content, the server link, date and time, and the content-creator information. Digital notarization is a protocol that provides secure and convenient content authentication, modification, deletion, and ownership transfer. Another characteristic of this system is that the owner or group of owners can verify the authorized history of the document.

IPFS (InterPlanetary File System). IPFS is a complete P2P network that enables secure storage of hypermedia content. IPFS's decentralized storage nature combined with blockchain boasts unprecedented security. The original content of the news is stored within the IPFS network. The content received and stored within the blockchain works as an encryption link to the content called a hash pointer.

The combination and superiority of IPFS with blockchain

A block in blockchain stores small data of finite length. While useful to store data concerning units of money and short messages, the blockchain is not optimal to store data of larger lengths such as news articles, data, and photographs. Therefore, to store large amounts of data on the blockchain, centralized storage servers such as Amazon's cloud server must be used. However, by managing data through a storage solution based on the Distributed File Management System (DFMS), which is fundamentally P2P-based, its decentralized nature distributes the network and grants companies autonomy for storage use. Costs for storage maintenance are unnecessary. Furthermore, client-side encryption can help further secure the data.

The system is not affected by traditional security and privacy threats because it is based on

encrypted shared file storage in the P2P network. Even if a particular node suddenly goes offline, the system can always access the entire network without permission from a central authority.

The integration of P2P distributed cloud storage and blockchain technology can bring many benefits that are not traditionally provided by centralized cloud storage. Client-side encryption ensures data security and maintains data integrity. Moreover, by constructing such protocols, the network can significantly reduce the aftermaths of security breaches and infrastructure failures. Such open and democratic forms also reduce costs. In addition, data such as news articles can resist data failures, unauthorized access, tampering, and censorship. P2P distributed cloud storage offers the following important benefits:

High availability. Files can be replicated across peers for use by all peers.

Fault-tolerant. The peers in the network allow operational continuity in the event of a single or multiple peer failure or downtime. This finds the closest peer that the network storage can continue to use even if another peer goes down.

Deduplication. This solution prevents detecting duplicate files and storing the same files on the network.

CAS (Content-Addressable Storage). A mechanism that stores information that can be retrieved based on content rather than on a storage location, i.e. files uploaded to the network always provide a hash based on the contents of the file, distinguishing them from other similar files.

Scalability. The distributed architecture is slower and more inefficient than traditional centralized storage, but outperforms scalability. Storage solutions scale with the number of peers participating in the network. The more participants, the higher the performance.

Cluster/Distributed capabilities. The peers that are part of the network maximize their availability through data replication.

Immutability. All uploaded files cannot be removed or modified by all peers on the network. This is because all files can be identified through a hash using file content (content addressable repository). These identification systems guarantee all file versions.

Offline access (Caching). The caching mechanism on the client-side caches contents so that it can continue to be used even if the client goes offline when the content is loaded.

Multi-hash protocol. The solution addresses the size and encoding considerations using multiple hash protocols to distinguish outputs from various well-established cryptographic hash features.

Web service HTTP API. The P2P storage node has an Exposed Web Services endpoint built in

to help developers easily integrate storage with distributed applications.

VII. PUBLISH applications

To further enable adoption growth, several other income-generating services have been conceived as follows.

PUBLISHsoft

PUBLISHsoft (the “CMS”) is a blockchain-based SaaS content management system enabling publishers to issue their own PUBLISHprotocol-based cryptographic token. For newspaper newsrooms with little to no knowledge of how to implement their own token reward system and token economy, the CMS significantly reduces time to market and makes PUBLISHprotocol accessible to thousands of newsrooms. The CMS also comes with an automated news content notarization service that allows news organizations to index news content on the blockchain in the interest of creating a public archive of journalistic content, including any alterations to that content. The service, as identified by the ‘onchain’ badge, signals to readers that, mathematically, news content is authentic, (i.e., originates from a given publisher), and provides demonstrable evidence of a publisher’s commitment to journalistic transparency.

PUBLISHtools

PUBLISHtools makes a number of services developed by PUBLISH available as an API, allowing users of other CMS providers to integrate a reward system on their platforms in the form of a widget. PUBLISHtools also offers a blockchain-based news authentication and archival service called the ‘onchain’ news service, that allows publishers to index news content on the blockchain in the interest of creating public archive of journalistic content, including any content alterations.

Lastly, PUBLISHtools can be used to issue ERC-721 tokens to convert news articles into non-fungible tokens. This assetization of news articles serves to both protect the publishers’ intellectual property and help them raise funds for their business.

PUBLISHfact

PUBLISHfact is a fact-checking platform that incorporates PUBLISH’s very own patent, “blockchainbased fact-checking and content management method with search and its system (Patent number: No. 10-2140325).” Elements of fact-checking such as the (1) request for

an article to be fact-checked and the (2) evaluation of the fact-checking participants are permanently recorded on the blockchain to demonstrate the integrity of the fact-checked content and results. It also motivates participants of the fact-checking community to be more engaging and authentic as they are rewarded in token payments that correspond to their level of expertise. PUBLISH's NEWS token will be distributed on the platform.

PUBLISHdax

PUBLISHdax is a NEWS-based swap market enabling PUBLISHprotocol-based token holders to swap their tokens with other tokens including NEWS tokens. On the exchange, NEWS tokens serve as a Relay Token, enabling conversions between NEWS tokens and other PUBLISHprotocol-based tokens. Because NEWS tokens can be converted into any other token on the PUBLISH network, a connected token can also be converted to any other connected token.

Furthermore, news articles digitally assetized into NFTs through PUBLISHtools can be purchased and sold on the PUBLISHdax.

PUBLISHad

PUBLISHad is an ad network connecting advertisers to publishers wishing to host advertisements on their platforms. The ad network uses contextual advertising whereby advertisements are displayed based on theme and keywords of a news content item. Advertisers purchasing advertising space in NEWS tokens will be eligible for a discount.

PUBLISHid

PUBLISHid is a decentralized identifier (DID) system optimized to realize the self-sovereignty of personal information in the news media/media sector. Unlike existing platform services, it implements an integrated certification design that does not require the system to be expanded separately no matter how many certificate institution types are present. This provides an optimal solution for many media providers. Furthermore, the PUBLISHid will be integrated within PUBLISHsoft.

PUBLISHid will particularly focus on developing various authentication services such as Super ID Project (Super ID Project), which allows users to use many services conveniently and safely with one ID, and Biometric 2FA (Biometric 2FA) in connection with biometric information such as iris and fingerprint.

Also integrated within PUBLISHid is the PUBLISHwallet, which is a decentralized hot wallet application for mobile devices. The wallet enables users to securely store, send, and receive NEWS tokens and other PUBLISHprotocol-based tokens, as well as view their account balance and transaction history. It is available for Android and iOS.

VIII. Conclusion

The future of the news media industry depends on creating new business models that implement innovative technologies. Furthermore, news media companies must endeavor to restore news credibility which has been severely tainted by the prevalence of misinformation. PUBLISH's blockchain-based products and services not only provides a solution to the problem of misinformation but also declining revenues. Looking ahead, PUBLISH seeks to strengthen its relationship with all stakeholders in the digital news ecosystem in creating a sustainable news media and entertainment industry.

IX. Roadmap

2011-2014

- Launched FxWirePro, institutional FX newswire
- FxWirePro partners with Metaquotes
- Launched AlphaPulse, AI text-mining solution
- FxWirePro Partners with Tradingview

2015

- Launched EconoTimes, International finance publication
- FxWirePro launches Bitcoin Newsfeed

2016

- Launched EconoTimes China Edition
- Launched Currency Strength Index for global FX brokers

2017

- Launched TokenPost Korea Edition
- TokenPost hosts Korea's first cryptoasset conference
- TokenPost reaches 10,000 subscribers

2018

- Conceptualized PUBLISHprotocol
- Issues off-chain NEWS token on TokenPost
- Hosts Korea's largest blockchain conference, the Blockchain Open Forum
- Launches TokenPost International Edition

2019

- Launched PUBLISHalliance
- Joined WAN-IFRA, IPTC, Open Index Protocol
- NEWS token IEO
- Conducted world's first 'news blockchain notarization' test
- Launched PUBLISHsoft

2020

- Certified as "Venture Company"
- Integrated stable coin 'NEWS KRW' on a news agency
- Launched in-house media innovation lab 'PUBLISHlab'

- Registered “Fact-checking, searching, and managing content via blockchain” patent
- Participated as on online booth on the Singapore exhibition, CTA2020
- Developed a blockchain new-media platform with 9colors
- Established Singapore branch, PUBLISH Soft Pte. Ltd.

2021

- Propose ‘Institute for Voluntary Data Disclosure by Internet Newspapers’ (IDI) platform
- Launched PUBLISHwallet on Android and iOS
- Launch PUBLISHtools
- Launch PUBLISHnft

2022

- Launch PUBLISHdax
- Launch PUBLISHfact

2023

- Launch PUBLISHsoft, open platform
- Integrate Big Data and AI News feed automation
- PUBLISH News Portal
- E-Commerce integration

X. Our Executive Team and Advisors

Executives



Sonny Kwon

CEO



Paul Kim

CSO



Jaden Yu

CIO



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PUBLISH is in the process of conducting legal and regulatory analyses of the functionality of the NEWS token. Following the conclusion of this analysis, PUBLISH may modify the intended functionality of the NEWS token to comply with the legal or regulatory requirements applicable to us. If we decide to modify the intended functionality of the token, we will update the relevant section of this white paper and upload the latest white paper to our website.

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