



# **Props:**

# A Tokenized Digital Media Economy

# **VERSION 2.0**

February 2019

#### **AUTHORS:**

YouNow, Inc. and the Props Public Benefit Corporation



#### **ABSTRACT**

In this whitepaper, we present our model for a network of digital media applications that will use a shared blockchain and a cryptocurrency to empower and reward the network's contributors: users, content creators, developers and other network participants—the **Props Network**.

The **Props Token** will be the underlying currency of this network of digital media applications—**Props Apps**—that will allow users to create, consume and engage with content and be rewarded with Props Tokens for their activity. The **Props Blockchain** and smart contracts on the Ethereum blockchain will serve as the enabling infrastructure for apps, connected by a shared data layer and a token, benefiting from collective network effects. Our design will enable users to freely move between Props Apps using the social capital they accumulate across the Props Network—their reputation, identity and capital in the form of Props Tokens. We are designing the Props Token economy's incentive structure to grow the proliferation of Props Tokens, and our rewards protocol smart contract—the **Protocol Rewards Engine**—will enable algorithmically rewarding of network participants with Props Tokens, based on their contribution to the Props Network. A significant portion of the Props Token supply will be dedicated to the Protocol Rewards Engine.

YouNow's current interactive live video app—the **YouNow App**—will be the first Props App, bringing the token to life through an engaged community that is already transacting in a digital economy. YouNow will incorporate Props Tokens in order to power premium functionality within the app, allow users to accumulate social capital and transact with one another, and better align incentives of the various stakeholders on the app. Token functionality within the YouNow App will roll out over time, starting with basic utility upon initial token distribution. We will subsequently launch other components of the Props Network, including the Protocol Rewards Engine and user rewards, and refine the Props Network's design.

We expect that additional apps will adopt the Props Token and join the network in the future. Our goal is to build, together, a community-empowering alternative to today's digital media landscape.



# TABLE OF CONTENTS

INTRODUCTION AND VISION	6
GLOSSARY	7
PRACTICAL PATH FOR REALIZING THE LONG TERM VISION	9
DESCRIPTION OF THE PROPS NETWORK  Overview  Props Apps and Token Functionality for End Users  Props Open-Source Tools for Developers	11 11 15 18
The Props Blockchain and Validators  Data on the Props Blockchain  Validators Facilitate the Functioning of the Props Blockchain  The Props Network Smart Contracts  Protocol Rewards for Props Apps (Developers)	19
Protocol Rewards for Validators  PROPS TOKEN'S ROLE IN ALIGNING INCENTIVES OF NETWORK PARTICIPANTS	24
PROPS GOVERNANCE  The Props Public Benefit Corporation (PBC)  Controller of the Protocol Rewards Engine, Grants & Development Budget  Grants, Ecosystem Investments & Open-Source Infrastructure Development  Increasing Roles for the Props Token Community	25 25 25 25 26
YOUNOW AS A LAUNCHPAD FOR PROPS	27
ACKNOWLEDGMENTS	28



#### DISCLAIMER

This whitepaper has been prepared solely for the purpose of informing potential participants to the Props Network with respect to a proposed technical implementation of, and architecture for, the Props Network. This whitepaper is non-binding in all respects and does not create any legal obligation of any kind on any person (including YouNow). The ultimate implementation of the Props Network is dependent upon several factors and risks outside of the control of YouNow, including regulatory risks, contributor participation, the adoption of blockchain technology and the continued use and adoption of the Ethereum network. Nothing in this whitepaper or otherwise shall require YouNow to take any steps to develop or otherwise implement the Props Network. YouNow reserves the right to abandon the Props Network and/or to change the implementation of the Props Network contemplated by this whitepaper at any time and for any reason. Prospective users of the Props Network and other contributors to the Props Network are advised to contribute and/or participate at their own risk and without reliance on any statement contained in this whitepaper.

No money or other consideration is being solicited, and if sent in response, will not be accepted. No offer to buy Props Tokens can be accepted and no part of the purchase price can be received under Regulation A until an offering statement is qualified pursuant to the Securities Act of 1933, as amended, and any such offer may be withdrawn or revoked, without obligation or commitment of any kind, at any time before notice of its acceptance given after the qualification date. A person's indication of interest involves no obligation or commitment of any kind.

Users outside the United States or otherwise subject to foreign law should consult with their counsel to ensure and confirm that they may participate in any offering of tokens. Some transfers of tokens may be limited under state or foreign laws. You must check with your counsel in order to ensure a transfer is compliant with such law.

#### SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This whitepaper contains forward-looking statements that are based on our beliefs and assumptions and on information currently available to management. Some of the statements in this whitepaper contain forward-looking statements. In some cases, you can identify forward-looking statements by the following words: "may," "will," "could," "would," "should," "expect," "intend," "plan," "anticipate," "is designed to," "believe," "estimate," "predict," "project," "potential," "continue," "ongoing," or the negative of these terms or other comparable terminology, although not all forward-looking statements contain these words.

These statements involve risks, uncertainties, assumptions and other factors that may cause actual results, levels of activity, performance or achievements to be materially different from the information expressed or implied by these forward-looking statements. Although we believe that we have a reasonable basis for each forward-looking statement contained in this whitepaper, we caution you that these statements are based on a combination of facts and factors currently known by us and our projections of the future, about which we cannot be certain. Forward-looking statements in this whitepaper include, but are not limited to, statements about: developing and designing our network; the anticipated development and growth of our network; our expectations regarding demand for the applications that are intended to use our network; maintaining and expanding our base of network users and application developers; our anticipated growth and growth strategies and our ability to effectively manage that growth and effect these strategies; the reliability of the third-party infrastructure and the blockchains on which our network depends; our expectations regarding whether a secondary trading market may develop for the Props Tokens; our expectations regarding regulatory developments and their effect on our network; and the ability of applications on our network to develop a user base and a successful business model.

We cannot assure you that the forward-looking statements in this whitepaper will prove to be accurate. Furthermore, if the forward-looking statements prove to be inaccurate, the inaccuracy may be material. In light of the significant uncertainties in these forward-looking statements, you should not regard these statements as a representation or warranty by us or any other person that we will achieve our objectives and plans in any specified time frame, or at all. We undertake no obligation to publicly update any forward-looking statements, whether as a result of new information, future events or otherwise, except as required by law.



#### INTRODUCTION AND VISION

We believe that continued and rapid growth of mobile video consumption, <sup>1</sup> combined with the evolution of blockchain technology, create significant business opportunities for digital media businesses that offer network participants an opportunity to benefit from the network's development. The opportunity to leverage blockchain technology and a crypto token in order to share in the benefits of the network's development will help align the interests of key stakeholders in the network like consumers, content creators and developers—all the people who make the network successful—and help drive attention and activity on a network.

To be successful, however, such a network will still need to provide cohesive user experiences and platform ubiquity that we believe consumers have come to expect. We are on a mission to build this next generation digital media network. We believe that the Props cryptoeconomic business model offers an opportunity to do so, and change the digital media economy

Initially, Props Tokens will have basic functionality within the first Props App, the YouNow app. This will provide the foundation for the development of the Props Network, so that users of Props Apps will in the future be able to earn social capital for their contribution to the apps, providing them with application utility. We also believe that, importantly, a cryptoeconomic business model like Props creates strong incentives for early adopters to participate even before a critical mass of users is achieved. Eventually, the combination of a community of users engaged in earning and spending Props Tokens through participation and consumption, with a reward pool for third-party developers who enhance it with new use cases, will provide the foundation for long-term development of the Props Network.

YouNow is taking on this challenge using its experience in developing and operating consumer-facing, participatory video apps using a digital currency. Since 2011, YouNow has been a pioneer in the interactive video space. YouNow created a microtransaction-driven, two-sided virtual economy powered by a digital currency within the context of video entertainment. YouNow is now leveraging its technology, expertise, user-base and other assets to build the infrastructure for an open, decentralized digital media network - the Props Network.

<sup>1</sup> Cisco Visual Networking Index: Global Mobile Data Traffic Forecast Update, 2016–2021 White Paper



#### **GLOSSARY**

This whitepaper uses certain defined terms frequently. These terms are defined below in this Glossary. Each term in the Glossary is shown in bold when it is first used in the whitepaper.

### **Props App**

An application on the Props Network that supports Props Tokens as a currency, offers special functionality to Props Token holders, rewards users in Props Tokens and shares information with other apps in the Props Network using a distributed ledger.

### **Props Network**

A group of digital media applications that utilize the Props Token and blockchain tools to share a common currency, user identity, reputation and rewards system between each other, forming a network in which contributing participants are fairly rewarded. The Props Network's blockchain infrastructure, set of open-source tools, and economic incentives structure are intended to attract developers to contribute to the Props Network by building Props Apps and open source tools, with the goal of creating a digital media network.

#### **Props Blockchain**

An independent "sidechain" that will be connected to the Ethereum blockchain, run and maintained by Validators. The Props Blockchain provides for scalable and cost-efficient data sharing between Props Apps. The data can be used by other Props Apps to improve user experience and is also used by the Protocol Rewards Engine in order to generate Protocol Rewards.

#### **Props Token**

An ERC-20 token that is used to unlock functionality in Props Apps, is transferrable, and will be used to reward developers, Validators, content creators and other digital media contributors to the Props Network. In the future, Props Tokens may allow holders additional functionality around voting and the governance of the Props Network as a whole.

#### **Props Protocol**

The set of conventions followed by Props App developers, Validators and Token holders to coordinate and incentivize the maintenance of a shared database and rewards system (e.g. the way data is reported to the Props Blockchain or the way Rewards are distributed).

#### **Protocol Rewards**

Props Tokens that will be algorithmically distributed to applications on the Props Network and to Validators. These rewards are designed to provide utility and incentivize



developers, content creators and other users to contribute to the Props Network. Protocol Rewards will account for 40% of the overall supply of Props Tokens.

## **Protocol Rewards Engine**

A smart contract on the Ethereum blockchain that will determine the allocation of Protocol Rewards every twenty-four hours based on an algorithm. The algorithm will take into account the portion of the overall Props user activity that each app on the Props Network generates. We expect that, as a result, each app developer will be incentivized to create compelling usage for Props Tokens in their apps, as the higher the number of Props Tokens used actively within an app, the more Protocol Rewards are allocated to that specific developer by the Protocol Rewards Engine on an ongoing basis. Users of each app may, in turn, receive a portion of the Token Rewards, based on their contribution, as defined in each app's criteria for reward allocation.

#### **Validators**

Props Network participants who are responsible for running the Props Blockchain using a Props Sidechain Node and recording data to the Props Blockchain. Validators also pass key data between the Props Blockchain and the Ethereum blockchain (acting as an "oracle"), as they submit daily updates to the Protocol Rewards Engine.

### **Pending Props**

Each time a Props App rewards a user with Props Tokens for in-app activities, the user will receive indication within the app that she will be entitled to receive tokens subject the completion of additional necessary steps like completion of know-your-client (KYC) checks. These amounts are recorded on the Props Blockchain, and referred to as Pending Props, a provisional accounting entry. Once the user completes the necessary steps to claim the tokens, the Props App will then transfer the Props Tokens on the Ethereum blockchain, and the Pending Props will be marked as settled.

# **Props Public Benefit Corporation (Props PBC)**

A Public Benefit Corporation that has been created by YouNow with the mission of creating an open, sustainable and equitable media network that fairly rewards all of its participants for their contributions to the network by supporting and promoting the growth, research, development, and adoption of the protocol and token underlying the Props Network. A portion of the Props Tokens will be issued to Props PBC to support its own operations and to distribute as grants to partners and other contributing Props Network participants supporting its mission.

#### YouNow App

A mobile video application developed by YouNow, where any user can broadcast to a live audience, watch video content and engage with content creators (broadcasters) and other users. It will integrate the Props token and become the first Props App.



#### PRACTICAL PATH FOR REALIZING THE LONG TERM VISION

Our goal is to create a network that empowers its content creators, developers and users, and that is fundamentally structured to better align the incentives of these various network participants.

The first stage in realizing this vision is the introduction of the Props Tokens into our existing YouNow App, which will initially allow users to enjoy additional in-app benefits like the purchase of unique virtual goods that help promote the content of their favorite content creators and celebrate the status of the Props Token holder. Subsequently, we will introduce other features for the Props Network, so that users will be integrated into an economy that is, in part, powered by Props Tokens. Contributors—Props App developers, Validators, and, ultimately, content creators and other users—will be rewarded with Props Tokens that will give them a stake in the Props Token economy. As the Props Network grows, we expect that there will be more and more utility for the Props Tokens earned by contributors. We further expect a diversified network of economic actors to contribute to the Props Token economy.

Our strategy is intended to result in a digital media network comprised of multiple independent Props Apps all supporting functionality for Props Tokens and connected by the Props Network's infrastructure. The roll out plan for the Props Network reflects our practical strategy:

- 1. Incubation—infrastructure building (started 2017): Design and development of the Props economy, the Props Blockchain, Props Network's smart contracts on the Ethereum Blockchain, and open source software and wallet SDK that enable digital media app developers to integrate Props Tokens into their app with minimal effort. We are continuously developing this underlying technology for the Props Network, including the Props Blockchain, smart contracts, and software.
- 2. Initial Props Integration—incorporating Props Tokens into the YouNow App, establishing community (2019): Establish the initial group of Props Token users in digital media by introducing Props Tokens into the YouNow App. This first Props App will furnish the initial user network and is designed to popularize Props Tokens among mainstream users, largely having no prior experience with cryptocurrencies.
- 3. Rewards and Validator Initiation (2019): Additional components of the Props Network infrastructure and smart contracts will roll out subsequently, subject to product and compliance considerations. We will begin rewards subject to receiving input from our community and regulators regarding our proposed offering of Props Tokens under Regulation A+ of the United States federal securities laws. At this stage, we also intend to enable a custom Props Token integration for wallet apps that will help create a user friendly mobile experience



for users to receive Props Tokens from Props Apps and other users, and access apps.

4. Open Expansion—additional developers joining Props Network (starting 2019): Once the initial network of Props Token users is established and the Props Token, Props Protocol Rewards Engine and the rest of the infrastructure are working, other developers will be able to integrate Props Tokens to their apps. YouNow will need to demonstrate the value of a contributor-driven cryptoeconomic business model and the way in which developers can create community-empowering apps using Props Tokens, its infrastructure and tooling. As we continue to develop the network, we expect to need to address regulatory issues in connection with our expansion. It is anticipated that every app that joins the Props Network will further build the network of users and grow the use cases for the token.

In the future, we intend to further develop the Props Network's shared layer to allow users to take not only their wallet and Props Token status with them across apps, but also transfer additional elements of their identity (e.g. relationships), contributing to seamless interoperability across the Props Network. We anticipate that new Props Apps that join the Props Network will be able to quickly onboard users who already have accounts with other Props Apps, and the new users that they will potentially acquire will likely contribute to the growth of the Props Network through creating content or engagement and growing the number of people holding and using Props Tokens. Over time, as the amount of Props Network users grows and the amount of Props Network-related data shared on Ethereum and the Props Blockchain grows, some developers could choose to build decentralized apps using Props Tokens and Ethereum. At that point, the Props Network will effectively support both centralized and decentralized applications that strengthen the network. We do not, however, foresee this happening in the short term.

YouNow and the Props PBC are putting in place the cornerstones for the Props Network themselves, while laying the foundation for decentralization in the future. As the Props Network evolves to include multiple Props Apps developers, YouNow and the Props PBC may take a less active role in guiding the development and administration of the Props Network. For example, in the future, when there is a healthy ecosystem of Props App developers, content-creators and users on the Props Network, Props Token holders could vote on changes to the Props Network's smart contracts and other significant matters in ways never anticipated, developed, or even endorsed by us, and play a more direct role in making key decisions affecting the Props Network.



#### DESCRIPTION OF THE PROPS NETWORK

#### **Overview**

The Props Network will be a network of consumer-facing apps that empower their users by enabling them to accumulate social capital in the form of Props Tokens, giving them a stake in the Props economy. Initially, there will be one Props App on the Props Network. Subsequently, we will add additional features to the network, including rewards and other Props Apps, so that users will be integrated into a Props economy that functions across apps operated by different developers. The information below describes how we envision the fully developed Props Network working.

All Props Apps will share several characteristics:

- Props as Currency: Props Apps will use Props Tokens as a currency that
  enables users to transact in the app or enjoy premium functionality within the app
  based on Props Token balance.
- **In-app Wallet**: Props Apps will give users a wallet enabling them to easily hold and transact in Props Tokens, with a low barrier to entry (for example, using PropsKit).
- Sharing Data on the Props Blockchain: Props Apps will regularly share basic usage data to the Props Blockchain, linking these apps to the other apps in the Props Network and its infrastructure, and helping to enable users to freely move between apps using the reputation, relationships and capital that they accumulate across multiple Props Apps. They can use PropsKit to easily do so.
- Props Rewards: Props Apps will be eligible for Protocol Rewards upon the
  introduction of the Props Protocol Rewards Engine, based on the verifiable
  activity of Props Token holders on their app. Each Props App is incentivized to
  then distribute a portion of the Protocol Rewards it receives with its contributing
  users, thereby empowering these users in terms of their experience on the app
  and status on the Props Network.

We expect that the structure of the Props Network will incentivize the creation of popular user-empowering apps. The Props Network's infrastructure and cryptoeconomy are being designed to both connect Props Apps and their users to the Props Network and incentivize key functions to be performed on the Props Network (for example development of Props Apps and validation of the Props Blockchain). We anticipate that Protocol Rewards and their allocation mechanics will benefit popular Props Apps' developers in order to attract other existing apps and independent developers to join the Props Network and incorporate the token into their apps. Initially, YouNow will provide developers with the tools to create a Props App, and Protocol Rewards will provide



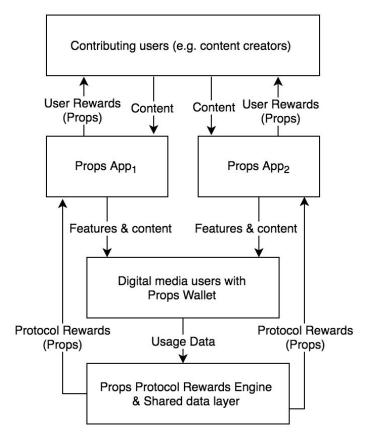
developers with ongoing token supply required to create a Props-powered economy within their apps.

The Protocol Rewards Engine is being designed to incentivize Developers to create meaningful functionality for Props Tokens within their apps, and make Props Token the app's chief currency. Users that contribute to the Props App may be, in turn, rewarded by that Prop App with Props Tokens, a transferable ERC-20 token that will unlock functionality and status across Props Apps and enable transfer between users of the Props Network (see more in *Props Apps and Token Functionality for End Users*). Increased utilization of the Props Network by users will thus result in more users demanding the token, which has a fixed supply schedule, thereby increasing the value users assign for tokens. We expect growth in the token's value to, in turn, draw more users, developers and **Validators** to contribute to the Props Network, earn Props Tokens and fuel the Props Network's growth.

We believe that financially rewarding content contributors, as we have previously done with our partner rewards, helps drive more content creation, consumer participation, and contributes to network growth. We anticipate that rewarding Props Network participants with Props Tokens will further fuel these effects beyond a small group of leading content creators (typically less than 1% of users), so that all participants on the network will become eligible for Props Token rewards for their contribution. This will apply to any content creator, content curator, users winning merit-based competitions that encourage users engagement, etc. Each Props App developer will be able to choose to reward users based on different parameters, which may often vary from app to app based on the use case.



The Props Token economy is being designed to function as described in the below figure:



**Figure 1.**Summary overview of the Props Economy

The Props Network infrastructure will be substantially based on the Props Network's open source tools, the Props Blockchain (a sidechain), and smart contracts on the Ethereum blockchain itself.

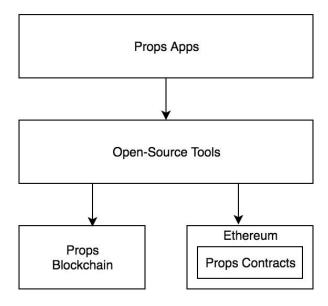
In summary, the Props Network will consist of the following building blocks:

- 1. **Props Apps (built and run by developers)**: consumer-facing apps that incorporate Props Token wallet and Props Tokens into their code and user experience, and share data with the Props Network. YouNow will be the developer launching the first Props App.
- 2. **Open-source software tools and SDKs (used by developers)**: software used by Developers to establish the interfaces with the Props Network infrastructure



and share data with other Props Apps (e.g. PropsKit, Props Sidechain Node).

- 3. The Props Blockchain (run by Validators, used by developers): comprised of data supplied by Props Apps and written into a publicly-available record of both app usage data and conditional rights to Props Tokens, run and maintained by Validators.
- 4. Smart Contracts on Ethereum (run by Ethereum miners): these smart contracts, including the Props Token Contract and the Protocol Rewards Engine smart contract into which Validators will input daily usage data and which will allocate a percentage of newly available Props Tokens to Developers of Props Apps, based on their relative popularity with users, and to Validators based on their work as validators of the Props Blockchain.



**Figure 2.**Summary overview of Props Network building blocks



# **Props Apps and Token Functionality for End Users**

Props Apps will be user-facing applications that incorporate Props Tokens as a currency, integrate the Props Network open-source software into the app and are, in addition, admitted to the Props Network so that their daily usage and their users' Props Token and Pending Props balance can be recorded on the Props Blockchain, as well as any other data shared on-chain in the future. YouNow's video chat app (which we refer to as the "YouNow App") will be the initial Props App and we expect to have additional Props Apps join the Props Network in the future.

In the future, third party Props App developers will be issued Props Tokens in the form of allocations of daily rewards from the Protocol Rewards Engine. Props Apps will also have a variety of functionalities for Props Tokens, as determined in the app developer's discretion, and in the future, app developers will be able to distribute Props Tokens to the users of their application using an in-app rewards system designed by the app developer. Users may be able to, for example, earn Props Tokens from Props Apps by contributing video content to an app or by winning a merit-based game in an app, though Props Tokens may be earned by the user in other Props Apps or acquired by the user as tips or in secondary markets, if any exist.

Props Tokens are an Ethereum-based and ERC20-compliant<sup>2</sup> cryptographic token that is earned through contributions to the Props Network. Props Tokens are chiefly intended to serve as the underlying currency in digital media apps that choose to empower their users with Props Tokens. As such, the token can have various use cases, depending on the specific Props App. Some of the functionalities we expect that Props Apps created by YouNow and by third parties in the future will provide are described below:

- Application-specific premium features: Props Tokens will entitle holders to enjoy key features based on their Props Token balance, including, for example, the power to "upvote" or recommend content to other users, eligibility to receive a better revenue share for earning content creators, discounts for the purchase of in-app virtual goods or access to unique virtual goods, and additional gameplay features like access to extra games or videos only available to Props Token holders. The YouNow app will initially support in-app functionality for accessing unique virtual goods used to upvote content and reward content creators, and we will roll our additional functionality subsequently.
- **Tipping:** Props Token holders will be able to send each other Props Tokens directly, from one user's wallet to another—thereby allowing Props App users to send each other gifts and share the other benefits of holding Props Tokens in these apps.

<sup>2</sup> The ERC20 interface is the standard implementation interface for many Ethereum-based digital tokens.



- Network Reputation and Status: Props Tokens will enable users to enjoy a
  Props Network-wide elevated status. Because the Props Tokens earned in any
  single app are fungible and the same as those that can be earned in any other
  Props App, once additional apps are added to the Props Network, this feature of
  the Props Network will allow users to, effectively, "port" their reputation and
  status across Props Apps and maintain a Props Network-wide reputation and
  status.
- Voting: In the future, Props Token holders may have the ability to influence
  potential changes to the rules of an App, its content or desired features by voting.
  In addition, in the future, Props Token holders may be able to vote on key issues
  affecting the Props Network, including, for example, changes to the algorithm in
  the Protocol Rewards Engine, or other updates to the Props Network smart
  contracts, based on their stake of Props Tokens.
- **Staking:** Validators will be able to stake their tokens in order to perform the validation work and earn Validator Rewards.





**Figure 3.**Tipping and improved revenue sharing premium features for Props Token holders within the YouNow Mobile App (conceptual design)

The first app to incorporate Props Tokens and function as a Props App will be the YouNow App. Outside of the utilization of Props Tokens, the participation in the Props



Token economy and the impact that Props Token ownership and transactions have on the app, the YouNow App is a standard app like those widely available to consumers today, and is not running entirely on "decentralized" infrastructure. Nevertheless, we anticipate that additional apps can be built by independent developers, and these apps may be either fully decentralized apps ("DApps")—i.e., apps that are completely built on blockchain infrastructure—or standard apps running on some centralized infrastructure. The Props Network's infrastructure is being designed to incorporate either type of app into a functioning Props Network and token economy when they are ready to incorporate Props Tokens and begin operating as Props Apps.

Separate from their operation in the Props Token economy, Props App developers will be free to monetize their apps by, for example, incorporating in-app purchases with fiat currency, selling subscriptions, sponsorships, or incorporating other forms of monetization into their apps. For example, YouNow sells "Bars" in the YouNow App, an in-app currency that may not be transferred outside of the app, in exchange for U.S. Dollars, and users may then use these Bars to purchase other virtual goods. YouNow shares some of this revenue with select users, but there is nothing in the Props Network's design that dictates the business model that Props Apps employ. The following diagram explains how we expect rewards will flow within the Props economy, and how they will operate in conjunction with any other revenue streams:

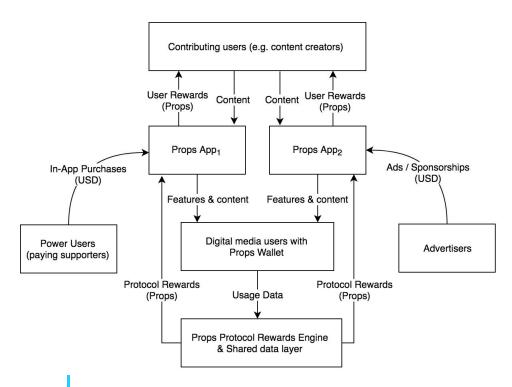


Figure 4.
Flow of Protocol Rewards and in-app Props rewards using examples of Props Apps with different business models. Each app distributes tokens to contributors via its own Rewards System, fitting its use case.



# **Props Open-Source Tools for Developers**

The Props Network's open-source software will establish the connections/interfaces between Props Apps, and between these apps and the Props Network's blockchain-based infrastructure. These software tools are designed to be incorporated into Props Apps. This software will enable functionality within the Props Network, including each app or user's ability to check the number of Props Tokens each user has on the Ethereum blockchain (each, a "Props Balance"), each app's ability to check the number of Props Tokens each user is entitled to receive from a Props App in the future as recorded to the Props Blockchain (each, a "Pending Props"), each app's ability to read the user's Props Balance and Pending Props, and each app's ability to communicate usage data and a user's entitlement to receive Props Tokens from the app in the future.

There will be two primary components of the Props Network's open-source software, which will be publicly available and free for any person to use and incorporate into apps:

 PropsKit Wallet SDK, which is being designed to operate as a mobile wallet for users' Props Tokens and (over time) additional information associated with their reputation and identity. This means that it will allow each app to display a user's Pending Props and Props Balance, as well as whatever additional information is stored in the wallet beyond the number of tokens. PropsKit is open-source software to be incorporated into Props Apps.

We expect that, for the majority of users, Props Tokens will be their first cryptocurrency experience. This presents both an exciting opportunity to introduce users to cryptocurrency and a significant responsibility to design an experience that is simple and secure. Instead of requiring a complicated wallet setup as soon as users install a Props App, users will be gradually introduced to the concept by earning Props Tokens. User wallets will be created automatically and synced between devices using personal cloud backup (not stored by the Props App developer). This matches the seamless experience users expect from mobile apps. Additionally, as users earn more and become familiar with cryptocurrency, they will have the option to complete the setup of their wallet, claim their Props Tokens on Ethereum and potentially move it to another wallet of their choosing, off their mobile device, for increased security.

For similar reasons, and in order to better support Developers of Props Apps and reduce the amount of work required for them to introduce Props Tokens to their users, YouNow plans to enable a custom integration for wallet apps that will help create a user friendly mobile experience for users to receive tokens from Props Apps and other users, and access apps.



2. The Sidechain Node is designed to allow anyone to maintain a copy of the Props Blockchain (the public database shared between Props Apps) and for Validators to write new blocks to it. Initially, the data recorded in the Props Blockchain will include daily usage of Props Apps and Pending Props, with additional data potentially being added in the future. By running their own node, each Props App can access data from the whole Props Network, enabling their users to enjoy the privileges of Props Token ownership earned in one Props App on another Props App. For Validators, the Sidechain Node is used to perform additional actions, such as recording the creation of Pending Props, and submitting usage data to the Protocol Rewards Engine (i.e., acting as an oracle).

# **The Props Blockchain and Validators**

## Data on the Props Blockchain

We are designing the Props Blockchain to be a record composed of key data for the Props Network and the basis for potential, additional data sharing between Props Apps and users in the future. While the Ethereum blockchain is effective in serving as a highly decentralized and secure backbone for Props Tokens and the Props Network's smart contracts, we believe it is too costly and inefficient for recording every transaction of data by Props Apps (for example, the recording of Pending Props). Given the current state of the Ethereum blockchain, we believe that running a scalable backbone for consumer-facing apps requires the usage of "Layer 2" solutions like the Props Blockchain, which serves as a sidechain to the Ethereum blockchain, allowing for faster data sharing at significantly lower costs, making fundamentally different architectural tradeoffs to those made by the Ethereum blockchain, due to the different function of each chain.

Data will be communicated by Props Apps to all other persons running the Sidechain Node software. The Validator is then tasked with recording this data to the Props Blockchain in "blocks" of data (see *–Validators Facilitate the Functioning of the Props Blockchain* below for details regarding the specific tasks and role of these Validators). Initially, the key data recorded to the Props Blockchain will have two components:

1. Usage Data: Each Props App will communicate usage data composed of a record of user sign-ins. Each time a user signs into a Props App, this data will then be communicated to participants running the Sidechain Node software, including Validators. This data is communicated on a continuous basis and includes the number of sign-ins performed by persons with Props Balances and Pending Props, together with the respective amounts of tokens. This data serves an essential purpose in the allocation of daily rewards of Props Tokens; daily excerpts of this usage activity are collected by the Validator each day and entered into the Protocol Rewards Engine. This data is then used to determine



daily rewards allocations by the Protocol Rewards Engine (see additional information in –*The Props Network Smart Contracts*).

2. **Pending Props**: Each time a Props App rewards a user with Props Tokens for in-app activities, the user will receive indication within the app that she will be entitled to receive the Props Tokens subject to additional required steps. We refer to these amounts as Pending Props. Each time a Props App rewards a user with Pending Props, this data will also be communicated on a continuous basis to participants running the Sidechain Node software, including Validators, and this information about the contingent reward will then be immediately recorded to the Props Blockchain. Once the rewarded user successfully clears the steps required to claim Props Tokens allocated to her, the tokens will be transferred on Ethereum, and the Pending Props are marked as Settled. Pending Props will only entitle users to certain in-app or social benefits.

It is hoped that the recording of Pending Props information on the Props Blockchain will also improve the user experience of Props Apps by allowing users to enjoy some of the benefits of earned Props Tokens while an app is still performing fraud checks or similar operations that must be completed prior to issuance of Props Tokens on the Ethereum Blockchain.

Validators Facilitate the Functioning of the Props Blockchain

Validators will be responsible for running a Sidechain Node, recording the above-described data to the Props Blockchain, and passing key data between chains (acting as an "oracle"). **Props PBC** will select the persons to serve as Validators, though in the future, YouNow may allow Props Token holders to vote on the choice of Validators. Validators may be required to stake Props Tokens against their right to act as validators of the Props Blockchain, and earn rewards in proportion to the amount they stake.

Only those selected as Validators will have permission to record data to the Props Blockchain, though it is publicly available for anyone to read. In addition to recording usage data to the Props Blockchain, Validators will compile a daily subset of the data from the Props Blockchain and communicate it to the Protocol Rewards Engine. More specifically, on a daily basis, the Validator will communicate aggregate usage data, including information regarding how much activity was undertaken by Props Token holders and their Props Balances and Pending Props within each Props App, to the Protocol Rewards Engine. This information will then be used by the Protocol Rewards Engine to make its daily allocations of Props Tokens (see more in *The Props Network* 

<sup>&</sup>lt;sup>3</sup> Users and Props Apps may be required to complete additional steps in order to complete a Props Tokens issuance, based on the paying Props App's specific policy (e.g. fraud handling) and times of issuance, as well as regulatory requirements like anti-money laundering checks.



*Smart Contracts*). In this capacity, the Validator will perform an oracle function to the Protocol Rewards Engine smart contract on the Ethereum Blockchain.

The Sidechain Node will make the creation of blocks on the Props Blockchain and the performance of the oracle function to the Protocol Rewards Engine automatic operations performed by the Sidechain Node software when run by permissioned Validators. These key functions also depend on the ability of the persons or entities acting as a Validators to continuously run this software and remain connected to Props Apps transmitting it accurate data, so that it may receive data and communicate to the Protocol Rewards Engine at each day.

# **The Props Network Smart Contracts**

Props Tokens will be created by a smart contract to be deployed to the Ethereum blockchain (the "Token Contract"). The Token Contract we are creating will maintain a ledger that records the ownership of Props Tokens.

The second smart contract that we intend to deploy to the Ethereum blockchain is the Protocol Rewards Engine, which will allocate or distribute 400,000,000 Props Tokens over time. Each day, the total amount of Props Tokens allocated in this way will be equal to approximately 0.036577% (on average) of the remaining Props Tokens in the Daily Rewards Pool. The allocation of Protocol Rewards by the Protocol Rewards Engine will have two components: for App Rewards (lion share of Rewards) and for Validator Rewards.

Protocol Rewards for Props Apps (Developers)

These allocations will be made on the basis of daily usage activity of Props Apps in order to reward the creation and operation of popular Props Apps. The Props Network's effectiveness in transforming the digital media economy depends on the number of people actively using its Apps to create, consume and engage with content and with one another, and the volume of their activity. The Protocol Rewards Engine will allocate rewards to apps based on the activity and Props Token holdings of each app's users. Props Apps may then distribute rewards to users based on internal metrics and an internal rewards system, or transfer Props Tokens directly to their users.

The majority of Protocol Rewards will be allocated to Props Apps, for distribution among these apps' developers and contributing users. We expect that Props Apps, in aggregate, will receive rewards in an amount equal to, each day, approximately 0.034748% of the remaining Props Tokens in the pool initially composed of the 400,000,000 Props Tokens allocated to the Protocol Rewards Engine.



More specifically, the allocation of rewards between Props Apps will be determined on the basis of the daily usage data communicated by the Validator to the Protocol Rewards Engine each day—with the algorithm in the smart contract allocating more importance to the Props Apps garnering more daily usage and giving particular weight to usage by users with higher Props Balances and Pending Props (see algorithm below). The Protocol Rewards Engine is designed to optimize for consumer facing apps that create meaningful functionality for Props Tokens and achieve a large user base. It provides extra incentives to grow the number of people actively using Props Tokens, as the bulk of the ongoing compensation will likely be the result of retaining users who hold Props Tokens on a Props App.

Props Protocol Rewards allocation among Developers will be determined by an algorithm:

$$\alpha P + \beta M + \gamma W$$

#### Where:

P: the total amount of Props Tokens that users possessed in the app

M: the median amount of Props Tokens that the users possessed in the app

W: the number wallets that possessed Props Tokens in the app

 $\alpha\,,\,\,\beta\,,\,\,\gamma$  : coefficient (weight) for different variables

In effect, we expect for Props Apps to compete for an allocation out of the Daily Rewards Pool—and as a result, apps will compete for higher daily usage that will be recorded on the Props Blockchain and used by the Protocol Rewards Engine in making allocations. We expect, therefore, each developer to be incentivized to grow the active user base of their app and create usage for Props Tokens in their apps and also to distribute Props Tokens to her users, as a potential incentive to attracting users who also will thereafter have Props Tokens. With more of these users, the Props App may be entitled to a greater allocation of Props Tokens from the Protocol Rewards Engine. Cumulatively, this will create greater usage of Props Tokens, higher value for the token for users of Props Apps and greater accumulation of capital by contributors to the Props Network.

#### **Protocol Rewards for Validators**

Validator Rewards Allocations are made in order to compensate Validators for the maintenance of the Props Blockchain and for acting as an oracle between the Props Tokens and Ethereum blockchains. We expect that Validators, in aggregate, will receive compensation for these services in an amount equal to, each day, approximately 0.001829% of the remaining Props Tokens in the pool initially composed of the 400,000,000 Props Tokens allocated to the Protocol Rewards Engine. We anticipate this daily reward will be split among all Validators in proportion to the amount of tokens



they stake. Initially, we expect that there will be up to seven persons or entities serving as Validators at the time of the Protocol Rewards Engine's introduction.

Because the Daily Rewards Pool is set at 400,000,000 Props Tokens and each of the above described allocations (App rewards and Validator rewards) will be made as a percentage of the remaining pool, the nominal amount of Props Tokens available to be allocated as both Developer and Validator rewards allocations will, initially, be larger and will decrease over time.

The Props Network smart contracts may be changed in the future; specifically, certain components of the Token Contract and the Protocol Rewards Engine may be updated and each of these smart contracts may be replaced. For example, variables in the rewards algorithm programmed into the Protocol Rewards Engine can be updated and either smart contract could be replaced with a new version. Props PBC will be the initial owner of the accounts with the ability to effect changes to these smart contracts (the "Controller") and may, therefore, effect these changes.



# PROPS TOKEN'S ROLE IN ALIGNING INCENTIVES OF NETWORK PARTICIPANTS

In addition to the functions that Props Tokens will have for users of Props Apps, we expect Props Tokens to play other key roles in the incentive structures required for the healthy, ongoing operation of the Props Network infrastructure and for the Props Network's growth. Some of these roles of the token will be coded into the **Props Protocol** itself, compensating for specific required functions, while others are implicit by the Props Network economy's incentive structure. Props Tokens serve as the payment currency for the performance of these functions.

- Validator Rewards. Props Tokens allocated by the Protocol Rewards Engine to Validators, who run the Props Blockchain. We anticipate that these reward tokens will incentivize Validators to maintain operation of the Props Blockchain and keep the data recorded on the Props Blockchain accurate, up to date and reliable.
- Developer Rewards. Props Tokens allocated by the Protocol Rewards Engine
  as rewards for usage of third party Props Apps. We anticipate that these reward
  tokens will incentivize the development and operation of popular Props Apps.
  Props App Developers may be able to retain some of the Props Tokens they
  earn and sell them in order to finance operations.
- **User Rewards.** Props Tokens may be issued to users for in-app activities, including contributing content and attention to those apps, curating content or taking other actions that add value to the rewarding Props App, and indirectly to the Props Network as a whole.
- Key Contributor Grants. Props Tokens granted by Props PBC to encourage
  and empower key Props Network participants to contribute to the Props Network.
  For example, grants can be issued for developers contributing open source code
  for the Props Network or developers building a Props App or repurposing an
  existing app to integrate Props Tokens.
- **Operational Capital.** Props PBC will have an allocation of Props Tokens set aside for potential sales, as needed in order to support its ongoing operations.



#### PROPS GOVERNANCE

# The Props Public Benefit Corporation (PBC)

In order to facilitate the growth of the Props Network, a Delaware Public Benefit Corporation was formed in September 2018 to encourage Props adoption. The Props PBC has a designated public benefit purpose of creating an open, sustainable and equitable media network that fairly rewards all participants for their contributions to the network, by supporting and promoting the growth, research, development, and adoption of the protocol and token underlying the Props Network. The PBC's functions are described below.

# **Controller of the Protocol Rewards Engine, Grants & Development Budget**

A key function of the Props PBC will be to serve as the Controller of the Protocol Rewards Engine smart contract, which is a key component in the Props Network growth strategy. The Protocol Rewards Engine will receive 400,000,000 Props Tokens upon the deployment of the Protocol Rewards Engine smart contract. The majority of these 400,000,000 tokens will be distributed algorithmically as rewards to Props Apps Developers who contribute to the Props Network's growth.

In addition, Props PBC may grant Props Apps developers an initial token supply, to jumpstart their Props Token economy and establish initial liquidity and maximize the utility offered to early adopters. Interested parties may, in the future, apply for these developer grants, reviewed by Props PBC, in an inclusive and transparent manner to ensure a fair opportunity to any developer interested in building on the Props Network.

# **Grants, Ecosystem Investments & Open-Source Infrastructure Development**

Props Tokens will be available for developers to integrate with independently. Separately, we expect that Props PBC will encourage the development of critical infrastructure used by the ecosystem, including, for example, wallets and other services for holding, spending or accessing information related to Props Tokens. In addition, in the future, Props PBC will work toward a shared data protocol that allows users to port more elements of their identity and relationships ("social graph") between applications in a secure way.

We expect that Props PBC will also sponsor activities like hackathons, competitions and promotions to develop ecosystem infrastructure, build the Props Network developer community and grow awareness for Props Tokens. Bounties, publicly published by Props PBC, may be associated with specific projects. We expect that the administration of Props PBC's discretionary grants and infrastructure development budget will help



ensure key contributions to the Props Network will be rewarded. Props PBC may also direct a portion of its grants based on input from ecosystem participants.

# **Increasing Roles for the Props Token Community**

The Props PBC's public benefit purpose is to support the growth, research, development, and adoption of the protocol and token underlying the Props Network. We therefore expect for it to dedicate an increasing number of seats on its board of directors to other key stakeholders in the Props Token community (for example, other developers running Props Apps) or to leading industry professionals and researchers with unique knowledge that can help better steer the operations of Props PBC and the development of the Props Network.

In addition, in the future, Props Token holders could vote on the choice of Validators or other matters. These votes could be advisory or, in the future, once a healthy ecosystem of Props App developers, content-creators and users on the Props Network is achieved, we could entrust the account with the ability to effect changes to the Props Network smart contract to a decentralized autonomous organization, which would then enable Props Token holders to vote on changes to these smart contracts. We don't believe that decentralization like this will occur in the near future, however, and in any case, it would be necessary to both gain substantial community support for these efforts and, also, create additional technological capabilities in order to successfully effect such decentralization.



#### YOUNOW AS A LAUNCHPAD FOR PROPS

Since inception in 2011, YouNow has been in the live streaming video industry and has provided popular social, live video streaming on mobile devices in the United States. YouNow develops and operates consumer-facing mass market participatory video applications that incorporate uses for digital currencies. Since 2017, YouNow has been leveraging its technology, expertise, user community and other assets to build the infrastructure for an open, decentralized digital media network called the Props Network. Given YouNow's substantial experience in developing and operating a consumer-facing mass market participatory video app using digital currency, we believe we are uniquely positioned to help develop a next-generation digital media network.

YouNow develops and operates consumer-facing mass market participatory video applications and powered digital currencies. The YouNow App provides a platform on which any user can broadcast to a live audience, watch video content and engage with content creators (broadcasters) and other users.

In order to enrich the participatory experience, encourage user engagement and empower content creators on the YouNow App, YouNow created one of the first two-sided virtual economies in the United States, with incentives for both content creators (broadcasters) and other users (fans). Through this two-sided economy, the YouNow App has generated over \$60 million in virtual goods sales since its founding and has shared its earnings with thousands of content creators through the YouNow App. YouNow's effective digital economy, powerful video technology and broadcasting tools, and the gamified user experience it has created have helped it attract over 2.5 million content creators and more than 45 million registered users to the network since its inception.

With the creation of the Props Network, the YouNow team continues to pioneer digital media networks' business model. Our goal is to create a network that empowers its content creators, developers and users, and that is fundamentally structured to better align the incentives of these various network participants. The Props Token, the Props Network and open source tools will serve as the enabling infrastructure for the Props Network.

YouNow will serve as the vessel and the first app economy to adopt Props Token, and we anticipate that it will create many users holding and using Props regularly. Our goal is for YouNow to be just the launchpad for the creation of a larger network of apps that leverage the Props Network infrastructure and Props Token to provide a better user experience and to better reward contributing users. We hope that the realization of this vision will help transform the way the digital media economy functions.



#### **ACKNOWLEDGMENTS**

This work is the cumulative effort of multiple individuals within YouNow, and would not have been possible without the help, comments, and review of the collaborators and advisors of YouNow. Yonatan Sela, Adi Sideman and Peter Watts wrote the original version of this whitepaper in 2017, in collaboration with the rest of the YouNow team, who provided useful contributions, comments, review and conversations. In particular, Eran Kalmanson, Ben Perper, Candice Reeves, Jake Brukhman, and Alex Felix had a meaningful contribution for this work. That paper laid the groundwork for the Props Network. We also thank all of the paper's reviewers, including Doug Petkanics (Livepeer), Nick Tomaino (1confirmation), Kenny Rowe (MakerDAO) and Joe Urgo (district0x), our collaborators and advisors for useful conversations.

#### **PREVIOUS VERSIONS:**

Version 1.1

Version 1.2