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# Abstract

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Po.et is a shared, open, universal ledger designed to record metadata and ownership information for digital creative assets. Po.et is a continuation of Proof of Existence, the first non-financial application of the blockchain. By creating an open platform on the Bitcoin blockchain, Po.et aims to create the most institutional, globally-verifiable record of digital media assets. This record will be a framework for building smart, interoperable media applications using a shared, standard and extensible metadata format.

In the same way that blockchain technologies have revolutionized the financial industry by creating immutable and distributed accounting ledgers serving as a platform for financial applications, Po.et will transform the publishing industry by creating an immutable and distributed ledger for creative works that may serve as a platform for both centralized and decentralized media applications.

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# Introduction

## 1.1 Problem Overview

Po.et seeks to address three key problems that are difficult to answer about digital assets on the internet today:

- 1) **Ownership** — Who owns this digital media asset?
- 2) **Utilization** — May I use, license or repurpose it?
- 3) **History** — What is the origin of this asset and what is its trajectory?

With the advent of the internet, the defensibility of established copyright and intellectual property has struggled to maintain pace with the reduced cost of information sharing. Media marketplaces like Shutterstock have attempted to address this issue by creating centralized hubs for licensing and ownership information of photos, but these marketplaces are neither interoperable nor do they openly and freely share the information with other applications and websites.

The issues in particular include proper and verifiable attribution of ownership, licensing and creation. Digital content lacks metadata information such as authorship, ownership, history and often the date of creation. Furthermore, metadata can be altered or removed after it has been finalized by the author, transferred to the cloud, resized or optimized for network performance. This inherent lack of verifiable information breeds uncertainty, especially when applied to complex chains of licensing, syndication and ownership. For example, a digital publisher licensing a pre-published article does not have the ability to be certain of whether the document in its current form is authentic and owned and able to be licensed. Currently, there is an immediate opportunity for an open protocol to establish the rightful ownership of creative assets, but this protocol must allow for inherently complex and adaptable ownership models.

## 1.2 Mission Statement

We leverage blockchain technology to ensure the existence, integrity, attribution of assets, analytics and data as we lay the groundwork for new models of financial exchange, collaboration and sharing. As such, Po.et enables value and trust to flow within the publishing and digital media industry between publisher, editor and content creator.

## 1.3 Core Objectives

The core objectives of Po.et are to create a platform which simplifies the process for publishing, licensing and authentication of digital assets. Simplifying the publishing process necessitates solving the issues of document integrity, licensing, arbitrage, analytics, syndication and attribution of digital assets. Po.et aims to create a blockchain-based platform with added smart contract functionality and applications to facilitate distribution of digital creative works and removes marketplace friction for publishers, editors and content creators by solving these issues.

## 1.4 Stakeholders

**Publisher:** Any person or entity that disseminates digital content, including articles, e-books, digital images, digital videos, etc. for a profit.

**Editor:** Any person or entity that curates, compiles or selects digital content, including articles, e-books, digital images, digital videos, etc. for a profit.

**Content Creator:** Any person or entity that produces any form of digital content, including articles, e-books, digital images, digital videos, etc.

# What is Proof of Existence?

## 2.1 History

Proof of Existence, one of the first non-financial applications of a blockchain, was created in 2013 by Manuel Araoz. This blockchain application allows for users to anonymously and securely store a cryptographic digest of a file linked to the time at which the user submitted the file. This was the first online service to allow a user to publicly prove they possessed a certain file or data without revealing the data or their identity in a completely trustless manner.<sup>1</sup> Proof of Existence utilizes the Bitcoin blockchain to ensure that the file's hash is permanently stored in an immutable data structure without the need for a central timestamping authority.

## 2.2 Utility

Three common uses of Proof of Existence include demonstrating data ownership without revealing actual data, document timestamping and validating document integrity. Demonstrating data ownership is vital when a conflict of ownership arises because it enables a user to cryptographically prove possession of the data that generates the hash. This functionality goes hand in hand with document timestamping because timestamping proves that a certain set of data existed at a certain point in time. Using these two features, a user can prove possession of a set of data at a given time, which provides strong evidence in support of copyright or patent claims. Third, Proof of Existence facilitates the verification of document integrity because modifications within the document will result in a different hash and alert the system that there has been a change. If a document has not been altered, it will produce the same hash that is stored in the Bitcoin blockchain, therefore providing evidence that the document has not been changed.

These utilities are beginning to align with demonstrable changes in legal admissibility of such “smart contracts” and records on a blockchain. Taking the lead last year, the State of Delaware started the Delaware Blockchain Initiative (DBI), probably the most well-known state program focused on smart contracts and blockchain technology.<sup>2</sup> Delaware's then-governor, Jack Markell, launched DBI to jumpstart recognition of blockchain technology under state corporate law, an especially significant move considering the many companies incorporated in that state.

Also last year, the State of Vermont passed a bill making it possible for blockchain-registered digital records to be admissible in court.<sup>3</sup> More recently, the State of Arizona introduced the so-called “Smart Contract Bill” in early February 2017, and it quickly landed on the governor's desk for signature on March 29 of that year.<sup>4</sup> Arizona's new statute does more than recognize the legality of smart contracts — it also brings any signature, record or contract that is “secured through blockchain technology” within the ambit of the state's Electronic Transactions Act. Other jurisdictions could recognize smart contracts under existing state laws modeled on the Uniform Electronic Transaction Act or the federal Electronic Signatures in Global and National Commerce Act, without having to pass smart contract- or blockchain technology-specific legislation.

In accordance, a group of journalists, editors and publishers at *Bitcoin Magazine*, the first publication focused on Bitcoin and digital currencies, saw the value of leveraging the capabilities of publishing digital assets to a blockchain and engaged Esteban Ordano and a team of developers to build a project that extended Proof of Existence to new commercial applications. These commercial applications begin with solving challenges unique to digital media, such as identifying ownership of digital assets, determining whether a use of a piece of an asset is authorized and simplifying the often manual, complicated licensing and onboarding process for outsourced authors, journalists and content creators. Thus, Po.et, or Proof of Existence 2.0, was born.

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[1] <https://proofofexistence.com/>

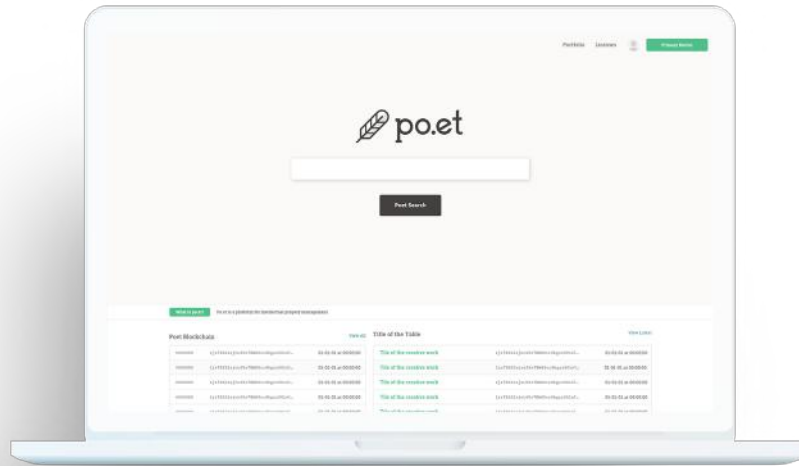
[2] <https://bitcoinmagazine.com/articles/delaware-blockchain-initiative-to-streamline-record-keeping-for-private-companies-1462812187/>

[3] <http://legislature.vermont.gov/assets/Documents/2016/Docs/BILLS/H-0737/H-0737%20As%20Introduced.pdf>

[4] <http://www.coindesk.com/arizona-governor-signs-blockchain-bill-law/>



# What is Po.et?



Po.et extends the timestamping and hashing features pioneered by Proof of Existence to enable new commercial applications by including additional metadata and discoverability. While Proof of Existence requires users to have the original file in order to verify the file's hash and timestamp, Po.et allows for the original file and its metadata to be discoverable. This makes it possible for anyone to verify both the authenticity of the original file and the associated metadata.

Po.et uses this shared ledger and data layer to create an extensible platform designed to record ownership and metadata for digital media assets. Po.et's platform allows a user to generate an immutable ownership certificate of digital works, track and license assets on the web, discover new assets and verify the authenticity of discovered assets.

Po.et is an open source project that is designed for the media and digital publishing initially — the original industry disrupted by the internet. While the internet diminished the barriers to entry for publishing and ushered in a new era of self-publishing and access to information, Po.et aims to enable value to flow within the publishing and digital media industry, from publisher to editor to content creator. In order to do so, Po.et will enable anyone to discover more information about the digital asset(s): Who owns it, can it be licensed or repurposed and what is its origin or publishing trajectory?

Historically, the answers to these questions have been siloed into specific content libraries like Getty Images, Creative Commons or other licensing organizations. Po.et will augment these existing content repositories by creating a shared, open, universal, metadata framework that will enable smart media applications to be built on top. Additionally, Po.et's implementation of blockchain technology extends the functionality of these existing marketplaces by enabling users to discover and verify their content across the internet.

Growth of the network will provide developers with valuable media data and metadata. This will facilitate the building of new and disruptive decentralized applications (DApps) and unique media integrations including asset marketplaces, rights management applications and open research marketplaces.

# Project Roadmap & Applications

## 4.1 Bootstrapping a Network

Po.et's strategy for seeding a network and repository of rich media information relies on providing unique value propositions for different stakeholders at each stage of the network's growth. Just as Instagram initially created a photo editing application before growing into the world's largest photo sharing network, Po.et will begin by providing publishing tools that are valuable without immediate network effects.

Po.et's first development era, **Rosetta**, is designed to attract digital publishers by providing them with a useful and inexpensive platform for timestamping and generating immutable ownership certificates for their digital assets. The next era, **Gutenberg**, will provide additional features which facilitate seamless licensing, syndication and attribution of digital assets among a **network of publishers** and trusted content creators. After a strong network of publishers is created, the project will move to the third era, **Alexandria**. Having a strong network of publishers will create sufficient critical mass for the project to move to an **open network** and **marketplace of independent content creators, editors and publishers**.

## 4.2 Stage One: The Rosetta Era

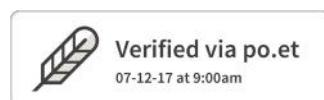
Po.et's first stage is designed to be useful for any **publisher**. Timestamps have been used for many years as legalevidence, to verify regulatory compliance, manage liability risks and record possession of intellectual property. However, they have typically been used only on high-value documents like patents because of the associated cost. Po.et makes trusted timestamps free, accessible and further improves their utility.

### FEATURES

The first feature integrated into Po.et is a **standardized metadata schema** for creative works. This enhances internal discoverability by creating a digital asset catalog and facilitating the search of a publisher's timestamped assets. Associated metadata includes original URL, word count, author and publication, as well as any custom attributes chosen by the publishers.

At this stage, Po.et also provides an accurate log of edits to assets and an **identity management system** to prove who amended a document. Users can create a Po.et profile secured cryptographically by private keys stored in the Po.et Authenticator mobile app. Identity management, when combined with proof of existence, creates an immutable edit log which defends against cyberattacks and manipulation of assets by allowing attribution of every change to its authorized source. Furthermore, a multi-signature permission will be available to ensure only members of an organization with the proper authority are allowed to view or make changes to any given asset.

The next issue Po.et addresses is the inability for publishers and editors to know whether the use of a digital creative work is authentic and authorized. Po.et solves this issue by providing an **authentication Badge** for every digital asset registered on Po.et. This Badge provides a visual representation of the asset's registration in the Po.et ledger, allowing users to follow the link to discover metadata and originating information about the asset, authentication and its use is authorized by the owner(s).



*A sample Badge showing an article that is verified on Po.et*

## SELECT USE CASES

- **Timestamping Academic Research and Analysis**
- **Admissible Legal Evidence**
- **Internal Discoverability**

Po.et, in the Rosetta Era, not only solves internal issues for publishers, but also provides a tool for improving accountability in the use of academic research and legal industries.

*Bitcoin Magazine*, a Po.et Alpha Partner, currently uses timestamping and Badge authentication to improve internal discoverability of its assets, demonstrate proof of ownership and provides readers with verification of content authenticity. Clicking the Badge allows a reader to view the timestamp of a given piece of content, its related metadata and analytics and an immutable edit log with a given piece of content's complete history. A Po.et Badge indicates proper attribution and provides editors with a link to reliable document history and performance statistics.

Researchers in industry and academia often have the authenticity and timing of claims called into question. Patent applications frequently involve disputes about dates and original experiment design. By creating an immutable record of the experimental design and results using the Po.et platform, this inherently wasteful aspect of research can be eliminated.

Governments are looking to streamline rules of evidence to allow blockchain evidence to be deemed admissible without an expert. U.S. states are leading the way. Vermont passed a bill that creates a presumption of admissibility of blockchain records that meet certain requirements.<sup>5</sup> Admitted records can be used as evidence of contractual parties or terms, effective dates, ownership, money transfers, identity, authenticity of a document or anything else. This means that a Po.et timestamp will provide strong evidence in a wide variety of claims.

### 4.3 Stage Two: The Gutenberg Era

Stage two of Po.et is designed as a distributed network of publishers, editors and their trusted content creators.

As the content network meets critical mass, all of the major stakeholders in Po.et will benefit. A publisher will be able to purchase, distribute and claim content with confidence. An editor has access to a growing asset library and transparent licensing parameters. Content creators get exposure to more potential revenue and the ability to advertise their services more broadly and efficiently.

## FEATURES

The first features implemented in stage two will be a streamlined **licensing system**, **payment channels** and **immutable portfolios**.

Anyone using the Po.et network will be able to search for, access the title to and license assets registered on the Po.et ledger. Po.et facilitates the secure distribution of assets by allowing publishers to define contracts and individual terms of use, employing cryptography to automate a **licensing system** that minimizes the roles of third parties. Publishers, content creators and editors can choose from pre-existing licenses or create custom parameters, automate micro-payments and transfer or issue licenses.

**Payment channels** further improve the experience by facilitating payment cycles with custom timing, parameters and terms set out in the licensing agreement. This platform of direct access can create a marketplace for quality assets with lower pricing by minimizing the overhead and manual processes needed to procure re-publication rights today and facilitating a direct relationship between trusted publishers, editors and their distributed teams of content creators.

The last feature, **immutable portfolios**, will allow for all content creators to create a profile highlighting all of their creative and digital assets across different publications, with well-defined parameters for licensing globally-creating a direct channel for any interested publisher to solicit their services or license their existing or future works.with well-defined parameters for licensing globally-creating a direct channel for any interested publisher to solicit their services or license their existing or future works.

## **SELECT USE CASES**

- **ISBN Replacement**
- **Discovery Marketplace**

A use case enabled in the Gutenberg Era is laying the foundation for the replacement of the antiquated and expensive International Standard Book Number (ISBN) system. An ISBN is the standardized numbering system that allows for any book or e-book to be searched in a database that contains basic metadata about the author, title and publisher.<sup>6</sup> A new ISBN is required for each edition and format of a publication. In the U.S. and many other countries around the world, this standard numbering system is monopolized by one private company that charges fees per ISBN number. A Po.et hash not only stores more metadata than an ISBN number, but also saves publishers money by providing this service for free.

At this stage, Po.et enables an asset marketplace with native discoverability, search and financial exchange. In this marketplace, trusted content creators may submit new, unpublished content. Publishers and editors can then search this marketplace, discover content they would like to publish, then connect and transact directly on the platform using smart contracts to automate payments and verification.

The Po.et platform will also enable content creators to incentivize the sharing of assets. For example, a corporate publisher would attach a monetary bounty to a press release, with licensing terms compensating other publishers for syndicating that asset. Today, networks like PRWeb and PR Newswire perform this function as intermediaries. However, Po.et would enable content creators to connect directly with said publishers.

### **4.4 Stage Three: The Alexandria Era**

The third stage is where Po.et can reach its greatest potential as an open, public network and asset database. The asset marketplace and other features will be just the first of many DApps built on top of Po.et. It will grow into a user-friendly and developer-friendly platform designed to connect content creators, publishers and editors to streamline the process for contracting, creating and licensing creative works. With the help of the early network participants and publishers, Po.et will research and develop reputation systems, economic incentives and other methods for fighting spam and promoting quality assets on the open Po.et network.

## **FEATURES**

At this stage, Po.et's documentation, APIs, plugins, tutorials and educational resources make it easy for companies, applications and services to be built on top of the Po.et platform and benefit from access to Po.et's network and features. The Po.et Foundation will continue to build and implement new DApps to improve the Po.et network. The open network will allow many others to apply Po.et's blockchain to address new use cases and solve countless other problems.

## SELECT USE CASES

- **Brand Licensing**
- **Open Asset Marketplace**

One potential use during the Alexandria Era is brand licensing. Examples of brand licensing are found everywhere in daily life, from NFL t-shirts to Donald Duck wristwatches to Spongebob Squarepants macaroni. The brand licensing market is estimated to be worth well over \$200 billion annually through sales alone.<sup>7</sup> The Walt Disney Company recorded over \$52 billion in sales coming from licensing product agreements spanning across the globe.

The industry, however, has its challenges. Copyright infringement on original assets and barriers to entry keep creators from attaining adequate recognition and compensation. Po.et offers an innovative solution by providing content creators the ability to generate immutable ownership certificates and seamless licensing agreements with integrated payments using the blockchain-based network.

Po.et creates an encompassing network on which parties can explore unique assets through the Po.et network for potential partnerships. This substantially reduces the amount of resources required to identify partners and simplifies the due diligence required — a draining process in the current brand licensing model. Furthermore, this brings an unprecedented level of accessibility to the licensor/licensee relationship under the Po.et network. Rather than limiting licensing agreements to large corporations with huge negotiating power, Po.et democratizes peer-to-peer sharing and the expansion of brand ideas.

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[5] <http://legislature.vermont.gov/assets/Documents/2016/Docs/BILLS/H-0737/H-0737%20As%20Introduced.pdf>

[6] <http://www.isbn.org/>

[7] <http://www.licensemag.com/license-global/top-150-global-licensors-2>

# The Po.et Token

## 5.1 Functionality

The Po.et native token serves several purposes:

1. To bootstrap the network effects of Po.et by creating a community of engaged, invested stakeholders and publishers
2. To raise funds for the long-term development of Po.et.

As the network grows and improves, the Po.et token will evolve with it and may serve a role in the governance and reputation systems for the network. Potential additional applications include staking tokens as a form of reputation and providing an economic mechanism to prevent spam on the Po.et platform. The token is intended to serve as a native payment system for the network, with Po.et tokens required to register new content, and as a governance method for the protocol.

While this Whitepaper does not preclude the Po.et Foundation from offering holders of Po.et tokens a share of the fees and revenue generated from the commercial applications of Po.et network, such offer, if any, and the extent thereof, will be at the sole and absolute discretion of the Po.et Foundation. Accordingly, there is no assurance whatsoever as to whether such offer will be made and holders of Po.et tokens should have no expectation of receiving any such offer. In the premises, no Po.et token should be construed, interpreted, classified or treated as enabling, or according any opportunity to, purchasers to participate in or receive profits, income, or other payments or returns arising from or in connection with the Po.et platform, the Po.et tokens or the proceeds of the Po.et token sale (as described in this Whitepaper), or to receive sums paid out of such profits, income, or other payments or returns.

The Po.et token is an ERC20 compatible token, built on the Ethereum blockchain for wide compatibility with existing wallets, exchanges, smart contracts and other financial infrastructure.

## 5.2 Po.et Token Overview

|  |                                  |
|--|----------------------------------|
| <b>Total tokens</b>  | 3,141,592,653                    |
| <b>Ticker</b>  | POE                              |
| <b>Type</b>  | ERC20                            |
| <b>Inflation</b>   | None                             |
| <b>Token sale start</b>  | August 8, 2017 at 8:08 a.m. EST. |
| <b>Sale length</b>   | Four weeks                       |
| <b>Fundraising goal</b>  | \$10,000,000 USD                 |
| <b>Implied market value of Po.et tokens (based on purchase price at token sale and total number of Po.et tokens to be created)</b> | \$20,000,000 USD                 |

## 5.3 Potential Revenue Streams

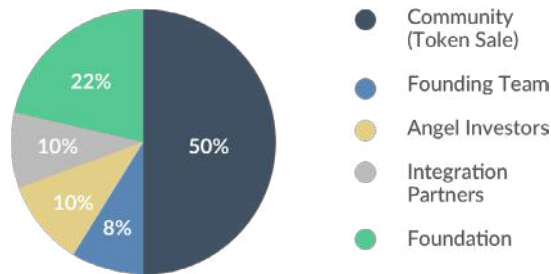
In the Rosetta Era, all fees will be fully subsidized by the Foundation.

In the Gutenberg Era, the **licensing system** and facilitating **payment channels** involved therein present opportunities for additional revenue. The development of **immutable portfolio** composition and verification DApps can provide another revenue stream at this stage.

In the Alexandria Era, Po.et Foundation revenue streams open up as the **brand licensing** and **digital asset licensing** marketplaces thrive. Network effects drive expansion of accessibility to markets, audiences and revenue for content creators and sources of content for editors and publishers.

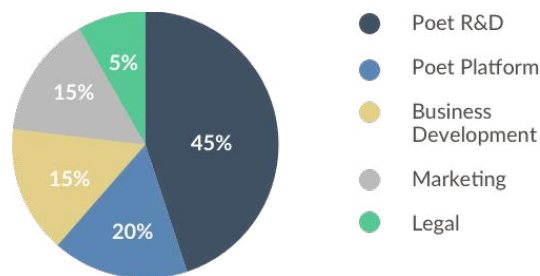
## 5.4 Token Distribution

Of the 3,141,592,653 Po.et tokens, 50 percent will be distributed to the community in a public token sale. Of the remaining Po.et tokens, 10 percent will be distributed to the early investors who funded Po.et development prior to the token sale. An additional 10 percent will be distributed over time to publishers, journalists, alpha partners and others who contribute to growing the Po.et network. The Po.et Foundation will retain 22 percent of all tokens for long-term development, with the remaining 8 percent going to the early team and founders.



## 5.5 Use of Proceeds

The Po.et Foundation will use all funding to support ongoing development and growth of the Po.et network. The majority of funding will be used for developer salaries and bounties for open-source contributions to Po.et.



## 5.6 The Po.et Foundation

Po.et is an open-source project being developed by the Po.et Foundation (Poet Technologies Limited), a Singapore-based organization whose mission is to develop and grow the Po.et platform.

The Po.et platform codebase will be released under the MIT License, ensuring that any network participant is able to extend and adapt the platform for its specific use cases.

The Po.et Foundation will be governed by a board of directors composed of no less than 5 and no more than 10 individuals who are either investors, founders, partners, advisors or team members of Po.et.



# Po.et Architecture

## 6.1 Definitions

**Claim:** A low level concept for a statement made on the Po.et platform.

**Title:** A claim made by one or more users regarding the ownership of a creative work.

**License:** A type of claim that states that somebody is allowed, under given circumstances, to license, publish or use a creative work.

**Notary:** Any user of the system that does the work of verifying claims made by other people and publish their decision on the Po.et platform in the form of certifications.

**Certification:** A type of claim that refers to another claim. It is the mechanism by which a notary asserts that a given claim is valid. A certification can be nullified by issuing a revocation.

**Revocation:** A mechanism for notaries to revert previous assessments. This allows for corrections due to error or in light of new evidence.

**Offer:** A claim that the owner of a creative work can emit to specify the terms under which it will issue a license for that work.

## 6.2 Proof of Existence

Proof of Existence uses the SHA-256 hash of a file as a digital identifier for that asset. SHA-256 is one of many cryptographic hash functions that take an arbitrary amount of input data and deterministically produces a fixed-length output, known as the data's "hash." It can be used to easily verify that data has not been altered because if any part of the input data is changed and the hash algorithm is run again, the hash will change.

Proof of Existence embeds this hash or digital identifier in the Bitcoin blockchain by generating a special Bitcoin transaction that includes the hash using the OP\_RETURN opcode, which allows for the storage of up to 40 bytes of arbitrary data in a provably unspendable transaction output.

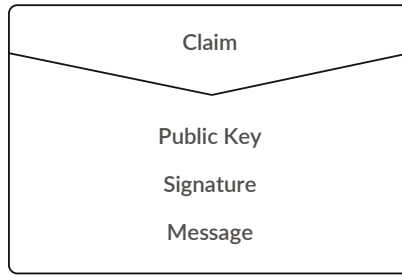
At the time of preparation of this paper (June 11, 2017), the cost per byte of data to store on the blockchain was approximately 280 Satoshis. At current bitcoin market price (~\$2,500), the cost to store 350 bytes (an estimate of a basic transaction with the OP\_RETURN data) is \$0.06. This price per claim is negligible compared to alternative solutions, though as Bitcoin adoption becomes more widespread, this price is expected to rise significantly.

Thus, a more efficient way to prove existence of many claims at the same time is necessary to scale.

## 6.3 The Po.et Protocol

The basic building block of the Po.et network is a claim. A claim is simply a message (arbitrary data) stored along the public key of who sent that message and a valid cryptographic signature for that message and public key:





Claim messages store information that an actor wants to keep in record for future reference.

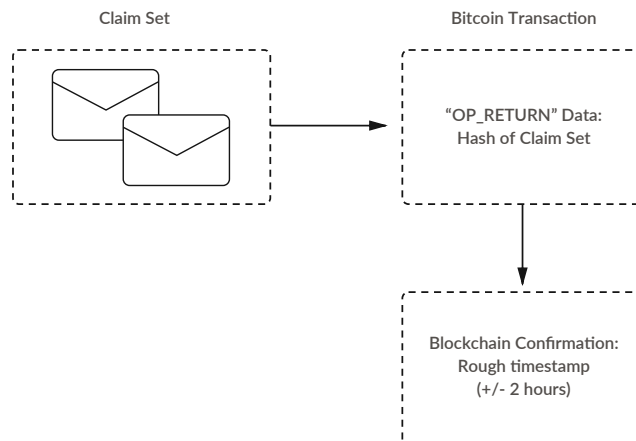
For scalability as a key strategic differentiator and to minimize transaction fees, Po.et stores multiple claims in a single Bitcoin transaction by hashing an entire claim set into an OP\_RETURN output. While the Bitcoin blockchain provides the most secure, immutable data store that has ever existed, data storage on the blockchain is expensive. Instead of storing assets and metadata on the blockchain directly, Po.et stores this data in a distributed hash table, using BitTorrent and the Kademlia DHT network.

Po.et nodes hash creative works and announce a BitTorrent magnet link to the Bitcoin blockchain. Other users are notified that this way of new information is available for download, as other nodes constantly watch the Bitcoin blockchain to get notifications about new claim sets that they can download. The hash proves that the claims existed at a given point in time. Po.et could use any blockchain, or an aggregate of multiple blockchains, to publish this information in the future.

In today's data format, valid Po.et transactions must follow these rules:

- Have at least two outputs
- One of the outputs has to be an OP Return standard output with the "POET0001" prefix written in ASCII encoding, the infohash of the torrent containing the claimset information and the BEP009 Tagged Info Hash that is expected to replace the use of SHA1 for SHA256
- One output paying at the minimum fee, currently 1,000 Satoshis, to the Po.et Foundation's Bitcoin address which will be waived during the first Era of Po.et's development cycle.

Hashing is a one-way function that proves a work existed, but one cannot retrieve the work itself using just the hash. Therefore, Po.et uses the BitTorrent network to store the complete works in files and allows them to be shared via torrent.



Once a claim has been made, it can be queried through interaction with a Po.et node or any other system adhering to the Po.et protocol.

A similar process to placing a claim can be used by a notary to add another layer of claim (a certification), revoke a claim or signal that the claim is available to be licensed (an offer).

## 6.4 Po.et Node

A Po.et Node is made up of the following micro services:

**ClaimSet Creator:** Exposes an API for the creation of claims, groups together multiple claims created by users over short periods of time (minutes to an hour) into a single claim set, hashes and timestamps this claim set onto the blockchain and passes the claim set to the torrent subsystem and claim processor.

**Torrent Service:** Responsible for downloading and seeding torrents and notifying other subsystems when new information is ready to be consumed.

**Bitcoin Scanner:** Scans the Bitcoin blockchain (both on an ongoing basis and retroactively) looking for valid Po.et transactions.

**Claim Processor:** Coordinates the Bitcoin scanner and the torrent subsystem, enriches claimset information with blockchain confirmation information and stores the information in a database.

**Trusted Claim System:** Processes information from the claim processor and filters out only those claims that are certified by trusted notaries. The output of this is a curated database of trusted claims.

**Copyright Domain Subsystem:** Applies the domain-specific rules to the information gathered by the trusted claim system and exposes the information with a RESTful API.

The microservices inside a Po.et node communicate with each other via RabbitMQ and Po.et nodes communicate with each other via the Bitcoin blockchain and BitTorrent protocol.

## 6.5 Publisher Integrations

There will be 3 main ways to write assets to the Po.et blockchain.

1. Single creative works can be manually registered through the Po.et node UI.
2. The Po.et foundation will develop integrations via popular CMS Plugins (Wordpress, Django, Ghost, Drupal, etc.), RSS Feeds, social media and code libraries for direct integration.
3. For large archives of assets and partnerships, the Po.et Foundation will work with partners to run a mass import of creative works from existing databases, websites or APIs.