

Current

A Peer-to-Peer Publishing Platform

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Abstract. Freedom of expression is under attack; the communication tools that we use today are controlled by a handful of powerful organisations; and increasingly authoritarian governments are shifting the boundaries of acceptable debate. There is a requirement for a communication platform dedicated to free speech, owned and operated by everyone, and free from centralised control. Individually operated, encrypted and eventually synchronised databases of content can be mirrored across a decentralised network of storage, providing permissions-based access to content without the need for a single organising body. Each user has their own complete build of the communication platform, allowing them to update asynchronously, and to subscribe to the content of other users based on their own interests. This approach delivers a tamper proof method for the dissemination of information with efficient performance and unlimited scalability.

Introduction

Current is a fully decentralised, peer-to-peer communication and publishing platform. You can think of it like Twitter, but without the centralised control, censorship or advertising.

With Current, every user is their own node, and every node contains a complete build of the Current platform.

Individual nodes are feature complete and stand alone. They operate in isolation and do not require a network (like the internet) to run. When connected to a network they can communicate with other nodes, which enables cross subscribing to take place.

Current is like a blockchain, but where every node(/person) is running their own full chain. And where that chain can be synchronised to other nodes on an open, permissions based or paid for basis. When a node connects to another node, they take and maintain a full copy of the other nodes chain. This approach builds data resilience into the network on a peer-to-peer basis, whilst leaving complete control over content with the holders of the keys for the originating node.

Offline capability means that in theory content could be shared via other means. Direct peer-to-peer connections (bluetooth) or offline sharing (think USB sticks etc.).

Existing alternative publishing platforms are trading on their small scale – they are too small for anyone to care about them. Any sufficiently large platform will become a target for censorship. Current protects against this by fully decentralising the method of content publication, distribution and storage.

Current is free to use and doesn't require sign up. It is designed to be used 100% anonymously.

Technology

Overview

Current utilises an *eventually synchronised* database paradigm. This approach to data synchronicity is radically different from traditional database design. It understands the nature of decentralised computing and places value on redundancy and the robustness of data over consistency at any given moment in time. It accepts that synchronicity between nodes is not a requirement. In a content network like Current, it doesn't matter if a post becomes readable by different people at slightly different times. This removes the need for database replication and sharding, making a truly decentralised system possible.

Each node runs its own chain, which means that there is no requirement for a "chain sync" on first launch, removing any limitations to the scale of the network. By way of example, the aggregate chain size for a person running Current and subscribed to 500 other nodes(/people), each with 2,000 posts of an average data footprint would be circa 4.9 MB. ($2,000 * 0.004 * 500 / 1024$.) The initial load to resync the entire chain set for an average individual user would take seconds on an average speed Internet connection.

Approach to Data

An individual installation of Current runs its own database/chain entirely. Individuals subscribe to other individuals databases, taking a full copy of them and making the other person's content visible within their own interface. An individual's content is secured using a private key. Access to individual chains and posts is completely under the control of the key owner. This enables open access, granted access and paid for access to content. It is also possible for multiple users to author content for an individual chain through the sharing of private keys.

Individual databases can be set to retain all authored content indefinitely or to be configured to automatically thin content over time.

Extending Functionality with Oracles

Oracles provide search functionality in Current. They are designed to allow for the creation of curated feeds of content aggregated from multiple nodes. This enables the creation of, for example, ecological feeds taking databases from verified ecology experts, or a UK news feed, taking databases from accredited journalists based within that country. Anyone can run an oracle and individuals can decide which Oracles to use. Oracles talk to each other, mirroring their content and providing a searchable database of curated content.

Current's main website at Current.io runs an oracle with a feed drawn from all databases to provide a moving window of content for new users. This is designed to ensure a low barrier of entry to the platform by providing an interface that can be readily understood by any level of

user. This website can be mirrored and run by anyone with publicly addressable computing capacity. In this way access to the main site is guaranteed by the Current community, removing the single point of failure that a domain-based interface represents.

Authoritative Sources

The concept of authoritative sources is used within the platform to give weight to authored content within search results in Oracles. The authority of content is calculated based on the downstream aggregate authority of subscriptions to chains. This system is designed to frustrate the gaming of the platform for reach.

Operating Model

Current makes use of ERC-20 smart contracts to provide an operating token for the platform. This enables individuals to optionally charge for their content on a per post or per channel basis. A small percentage (0.25%) of these transactions is put aside to fund the ongoing development of the platform.

Token Creation and Distribution

The currency of Current, \$VOLT, is distributed automatically to users of Current on the basis of the utility that they provide to the network. Nodes that are online more often, operate as content stores, and that have a high level of authoritative subscribers, will mine the most tokens. In this way circulating supply expands as the network expands. To incentivise early use there is an inverse correlation between aggregate chain size and token distribution, meaning that the amount of \$VOLT distributed is reduced as the usage of the network increases.

This is designed as a completely fair and transparent distribution model, with no pre-mine and no upfront sale of tokens.

Token utility

Paid for Content

Individuals deciding to charge for access to their content can set the value of the charge in \$VOLT as they see fit.

Short Names

Individuals wishing to utilise a short name within Current rather than rely solely on their cryptography generated Current address can do so by bidding for a name and paying for it using \$VOLT.

Conclusion

Freedom of expression is under attack. The requirement for Current is urgent. It is the only viable fully decentralised solution of its kind – a publishing platform designed in support of freedom of information and free speech. It has been started by individuals with a deep background in technology, user experience design and marketing. They recognise that free speech lives and dies with the scale of adoption of competing technologies. Your support will be critical to its success.