

SOCIAL MEDIA PROTOCOLS(Web3 SOCIAL)

State of art & Open Problems

Lens Protocol

lens protocol is a user owned, open source, public protocol composable and decentralized social graphs that any application can plug into, one can create profile, follow others, create and collect any publications on chain. It's an web3 native(it's been build with features to serve the web3 community).

MOTO:-

Own your data

Own your social graph

Own your data

Applications build using lens protocol are in Lensverse:- Lenstube, phaver, Lensport,RIFF

MEWE (uses Decentralized social networking protocol from project liberty)

DSNP is an open-source project that provides the basic plumbing of a social network but is not tied to a specific company, giving users greater control over their data. Project Liberty wants to address mass data collection over the internet and return the ownership of personal data to people through the use of technologies including blockchains. MeWe, which has been called the anti-Facebook, doesn't share users' info with advertisers and makes "privacy the foundation of online social experiences," according to its [website](#). It said this announcement makes it the largest decentralized social network.

It is built on Polkadot (a cryptocurrency) focused on user's privacy.

SECURE SCUTTLEBUTT(SSB) PROTOCOL - p2p protocol

SSB is a decentralized messaging and social networking protocol that focuses on offline-first and peer-to-peer communication. It enables users to create and share messages in a peer-to-peer network, allowing for local replication and synchronization when connected to the internet.

EACH USER HOST IT'S OWN CONTENT AND THE CONTENT OF OF THE PEERS FOLLOW WHICH PROVIDE FAULT TOLERANCE AND EVENTUAL CONSISTENCY

It's is designed for sharing sharing, every node has a partial view of the network. Every user has a public/private keypair which is used to sign posts, verifying their authenticity. At the ssb protocol level, there is a “flag” feature to send a strong negative signal about bad actors. There is no global moderation, and no specialized moderators. Applications built on top of ssb allow users to “block” and “ignore”. If enough people block a user or group of users, their part of the network will become cut off from the rest.

Maintainers of p2p networks do not have to pay for hosting costs, since there are no servers and the network naturally grows in capacity as new users join. The ssb ecosystem is supported through a variety of grants, donations, income from side projects and consulting, and a few companies that have raised money to build applications on ssb.

Aether - Another P2p protocol

[Aether](#) is a Reddit-like p2p social network. Instead of an append-only log, its data structure is a DAG (directed-acyclic graph), and it makes posts ephemeral.

You can edit and delete posts, and they automatically get dropped after a period of inactivity, unlike ssb, which stores every post.

IPFS (InterPlanetary File System) PROTOCOL

IPFS is a distributed file system that uses content-addressing to make data available in a decentralized manner. It allows users to store and retrieve content based on its cryptographic hash rather than its location, making it resilient to censorship and enabling decentralized social media platforms.

If someone runs IPFS on their computer and uploads a file to the IPFS network, that file can be viewed and downloaded by anyone else in the world who is also running IPFS. Content identifiers, uploading file IFPS, Directories - one can upload multiple files

Arweave protocol

A Arweave protocol is stable, mature and widely adopted. As such, its ecosystem is fully decentralized. This site is just the tip of the iceberg. It acts as a map that points you to places you can learn about, use and build on Arweave.

Files are stored permanent, making your own homepage on the PERMAWEB (an immutable, decentralised web that puts the power back in the hands of the masses.) Permanent hosting of their webapps and webpages, one can build websites and store information that live forever on smart blockchain. The permaweb's serverless structure is much more efficient, saving you time and money. Just like Uber or AirBnB lets you make money from your unused car or home, Airweave helps you make money from your spare hard drive space by connecting you with people that need web hosting.

Airweave.news, podcast.permacast (pay once, store information forever. Censorship resistant data will be stored for at least 200 years)

ACTIVITYPUB Protocol

One of the notable protocols is the ActivityPub protocol, which powers platforms like Mastodon, Pleroma, and PeerTube. ActivityPub is a decentralized social networking protocol based on the W3C standard called ActivityStreams. It enables interoperability between different social networking platforms, allowing users to follow and interact with content across different instances.

As we know, In mastodon the instances are owned by admins or small organization with less resources. It has its own pros and cons. No encryption is there in mastodon. Admins can read messages and write messages.

FARCASTER

FARCASTER is a decentralized protocol and Warpcast is built on top of it. It's sufficient decentralization. Nobody owns it's data is distributed and replicated across various servers like decentralization.

The protocol allows for the exchange of assets like cryptocurrencies, tokens, and even non-fungible tokens (NFTs) across different blockchains. By leveraging the decentralized nature of blockchain technology, Farcaster aims to provide users with greater control over their assets while maintaining privacy and security.

Decentralized Social Networking Protocol

A decentralized social networking protocol (DSNP) will allow users to own and control their social graph, while avoiding the balkanization of the current social network providers and creating an open ecosystem of network participants.

The decentralized social networking protocol (DSNP) is composed of three major elements. The first is identity, which creates a representation of users. The second is a social graph, which models relationships between user identities. The final element is messaging, which facilitates communication between the users based on their social graph connections. [Here is the paper regarding DSNP.](#)

Problems

When we say decentralization brings freedom of speech, inequality, no censorship kinds of freedom on the table, but such freedom brings their own troubles and fewer tools to address them

1. **The immutability of data can be a handicap**, Applying blockchains in social media networks cannot ensure that racist, homophobic, or culturally harmful comments will not be distributed. Any data that is stored in the blockchain will be there indefinitely. It cannot be removed or modified. Only user registry is there on the blockchain. In addition, members or site owners cannot remove members' data, even on request
2. **User adoption:-** Persuade people to leave their present social media/profile homes in which they are extremely comfortable and join a decentralized social media platforms with sometimes drastically different user experience and architecture and a significantly smaller number of their contacts. **Sometimes people don't want to switch to multiple servers to see different things.**
3. **Less feature:-** Decentralized social media sometimes have shortage of attractive features like instagram or youtube. Lots of them have limited functionality compared with centralized social media, which can impact their usefulness and appeal to potential users.

4) Content Moderation:- Decentralized social networks face challenges related to content moderation, ensuring that harmful or illegal content is not propagated. Developing decentralized moderation mechanisms that are effective, transparent, and resistant to manipulation is an area of active research.

5) Scalability Issue:- Blockchains are not as scalable as their centralized counterpart systems. The scale of blockchain-based social media is relatively small, and blockchain nodes cannot afford to expand and deal with large flows of material. With a blockchain, it may not be as quick and easy as it relies on nodes to validate transaction & validate system integrity and A blockchain system does not scale proficiently, and has low scalability with massive amounts of information. These deficiencies have led to various attempts to manage social media's cumulative capacity, information, and content. Difficult to handle large amounts of traffic and data.

6) Regulation:- To date, there are still no global standards for blockchain. Governments and financial institutions still seek to regulate decentralized networks and the crypto space.