AEGEUS

PRIVATE, SECURE
BLOCKCHAIN DATA MANAGEMENT

BLOCKCHAIN/IPFS DATA CREATION/STORAGE/SHARING

JUNE 2018

WWW.AEGEUS.IO

Aegeus Proposal

Aegeus seeks to combine the power of a distributed ledger (**Blockchain**) with a distributed filesystem (**IPFS**). Our goal is to not only create an intuitive user interface that allows people to **create**, **control** and **manage** their data, but to also build in parallel, a private network of IPFS nodes with a customized **version** that provides **incentives** for reliable nodes serving content.

Our first feature will be an alternative to Google docs, where people can create **public** or **private** documents, **share** them, and **determine** their lifespan. In forking the current implementation of IPFS into our own version, we gain the ability to define how data is constructed and ties into the Aegeus blockchain.

Using the Aegeus blockchain to keep a current reference to data on our own private IPFS network, we can **assure** users that their data is managed how they determine, not by any single entity or authority and with complete transparency.

This is what Aegeus proposes to introduce to the cryptocurrency space with a long term vision. Additional IPFS technology is planned as soon as initial protocols are released.

What is IPFS

"When you have **IPFS,** you can start looking at everything else in one specific way and you realize that you can replace it all" — **Juan Benet**

IPFS or Interplanetary File System, is a distributed file system that seeks to connect all computing devices, no matter where they are, with the same system of files.

In some ways, this is similar to the original aims of the world wide Web, but IPFS is actually more similar to a single bit torrent swarm; exchanging git objects. IPFS has the potential to become a new major subsystem of the internet. If built right, it could complement or replace HTTP.

The possibilities are endless but for data creation, storage and distribution, IPFS has near enough to unlimited possibilities.

Addressing/Identifying Content

Rather than referring to pictures, articles and video objects via their server location, IPFS refers to everything by the hash on the file. So if you want something, IPFS will ask the entire network if anybody has this particular file relating to a specific hash. A node that does, can return the file allowing access.

This mechanism is to take a file, apply a cryptographic hash to it so you end up with a very small and secure representation of the file thus preventing somebody from just coming up with another file of that same hash and uses that as the address. IPFS talks with specific objects and paths within that very object.

Finding a file using IPFS is very advantageous in the sense that it can significantly reduce the load across the network. It normally involves two steps:

1. **Identify the file with content addressing**

2. **Go and find it: when you have the hash, then you ask the network you're connected to 'who has this content? (hash)' and you connect to the corresponding nodes and download it.**

The result is a peer to peer overlay that gives you very fast routing.

IPFS OBJECTS

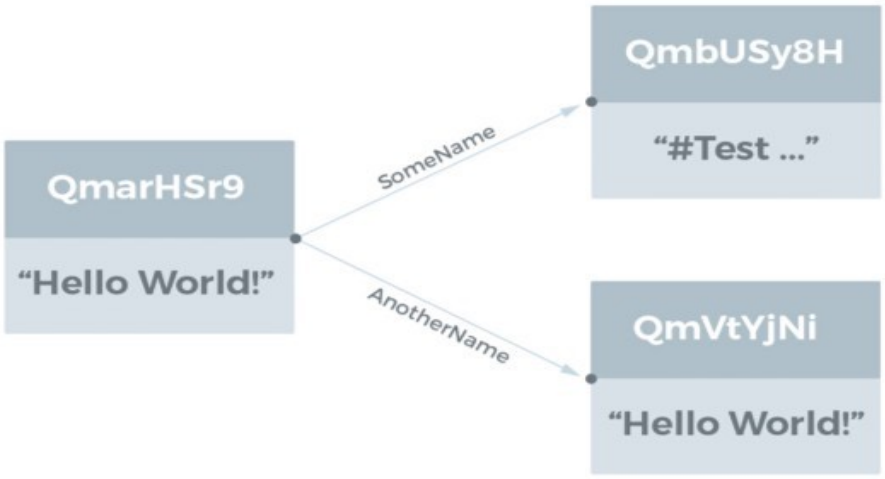
IPFS objects are data structures with two fields:

- **Data** — a blob of unstructured binary data of size < 256 kB.
- **Links** — an array of Link structures. These are links to other IPFS objects.

A Link structure has three data fields:

- **Name** — the name of the Link.
- **Hash** — the hash of the linked IPFS object.
- **Size** — the cumulative size of the linked IPFS object, including following its links.

The *Size* field is mainly used for optimizing the P2P networking. IPFS objects are normally referred to by their Base58 encoded hash.



Benefits of IPFS

- No duplication (**deduplication**) because everything is addressed by a hash
- **File Integrity**, files match the hash and allows for hosting rewards to be given out to participant nodes.
- **Cheaper** hosting
- **High performance**, p2p scales better
- **Clustered**/distributed persistence/availability
- **Archiving** immutable data
- **Censorship resistant**, except self-censorship
- Access to content "**offline**" or in low connectivity 3rd world or rural areas, in the same sense that git works offline
- **Directory browsing**
- **Multi-hash**, multiple transport support etc.
- Many beneficial **properties** over the current web

Conclusion

IPFS is basically the only existing distributed filesystem with a proven track record and active development team behind it. IPFS is definitely going to be used in many future applications because of this and more notably it has a very strong development audience.

To find out more about IPFS, it's development team, publications and upcoming events please visit **https://ipfs.io/**

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