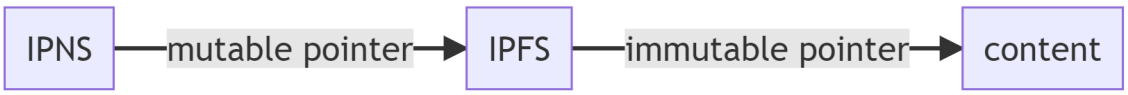
Introduction

Content addressing in IPFS is by nature immutable: when you add a file to IPFS, it creates a hash from the data, with which the CID is constructed. Changing a file changes its hash, and consequently its CID which is used as an address.

Yet, there are many situations where content-addressed data needs to be regularly updated, for example, when publishing a website that frequently changes. It would be impractical to share a new CID every time you update the website. With mutable pointers, you can share the address of the pointer once, and update the pointer – to the new CID – every time you publish a change.

The InterPlanetary Name System (IPNS) is a system for creating such mutable pointers to CIDs known as names or IPNS names. IPNS names can be thought of as links that can be updated over time, while retaining the verifiability of content addressing.

A name in IPNS is the hash of a public key. It is associated with an IPNS record (opens new window)containing the content path (/ipfs/CID) it links to and other information such as the expiration, the version number, and a cryptographic signature signed by the corresponding private key. New records can be signed and published at any time by the holder of the private key.



DoNFT implementation

We host our own IPFS node (Kubo) because we didn't find a public node with IPNS feature. We used next methods and create public API for these:

- upload - upload data to IPFS
- key_gen - creating IPNS name
- publish - publishing file on IPNS name
- get_keys - get all pairs of IPNS and IPFS keys

For implement dynamic NFT feature we create next flow:

1. Create IPNS key by key_gen method
2. Upload file to IPFS and received cid or use already existed cid
3. Public cid to IPNS key from 1 step and received IPNS url. Save IPNS url for update purposes because IPNS url is alive only 24 hours.
4. Use crono each 12 hour for republish files by IPNS url

5. Return all IPNS, IPFS pairs by get_keys method
6. In additionally we implement update method for update file on IPNS name