



IPFS for System Administrators

by TeraRocket Networks
<https://terarocket.io>

What is IPFS?

IPFS stands for “Interplanetary File System” and is designed as a planetary scale P2P replacement for the web as we know it.

Website: <http://ipfs.io>

How does it work?

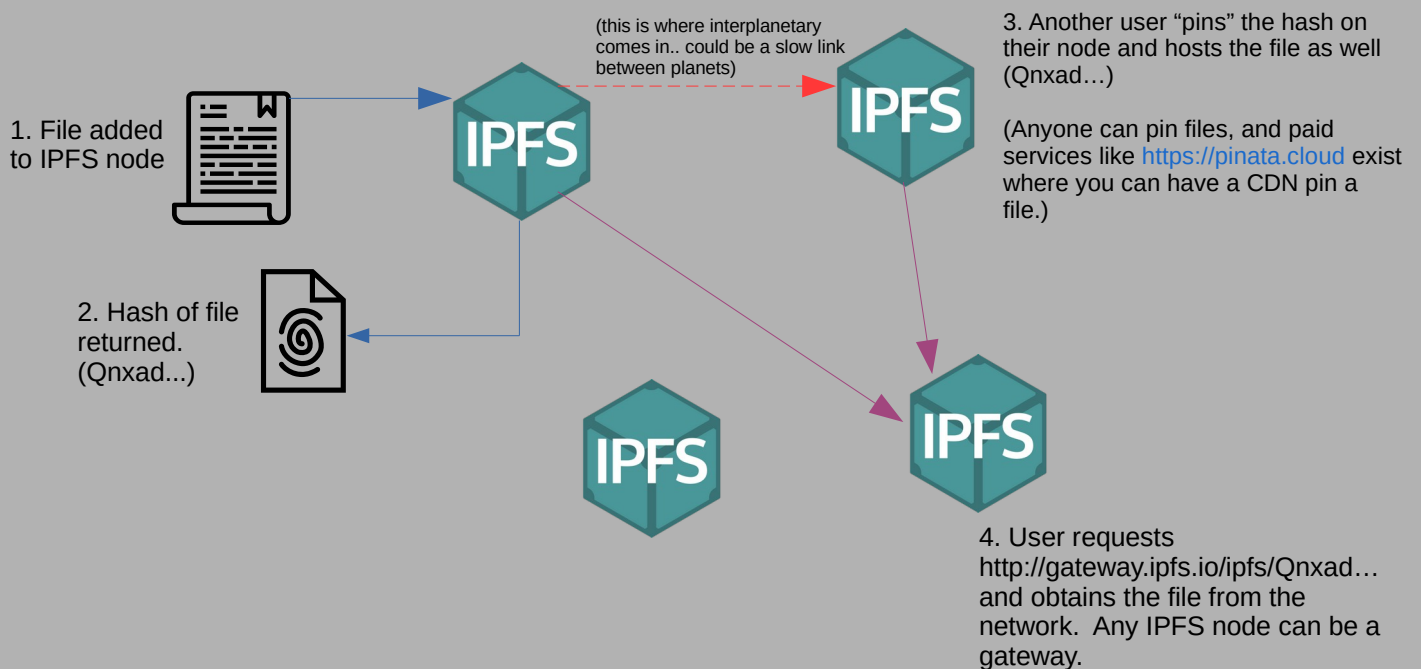
Files are hosted on IPFS by any node on the network. Adding a file to an IPFS node will return a hash identifying it within the network.

Raw files can be added (and are identified strictly by hash), or directories of files can be added (directories enable files to retain their names)

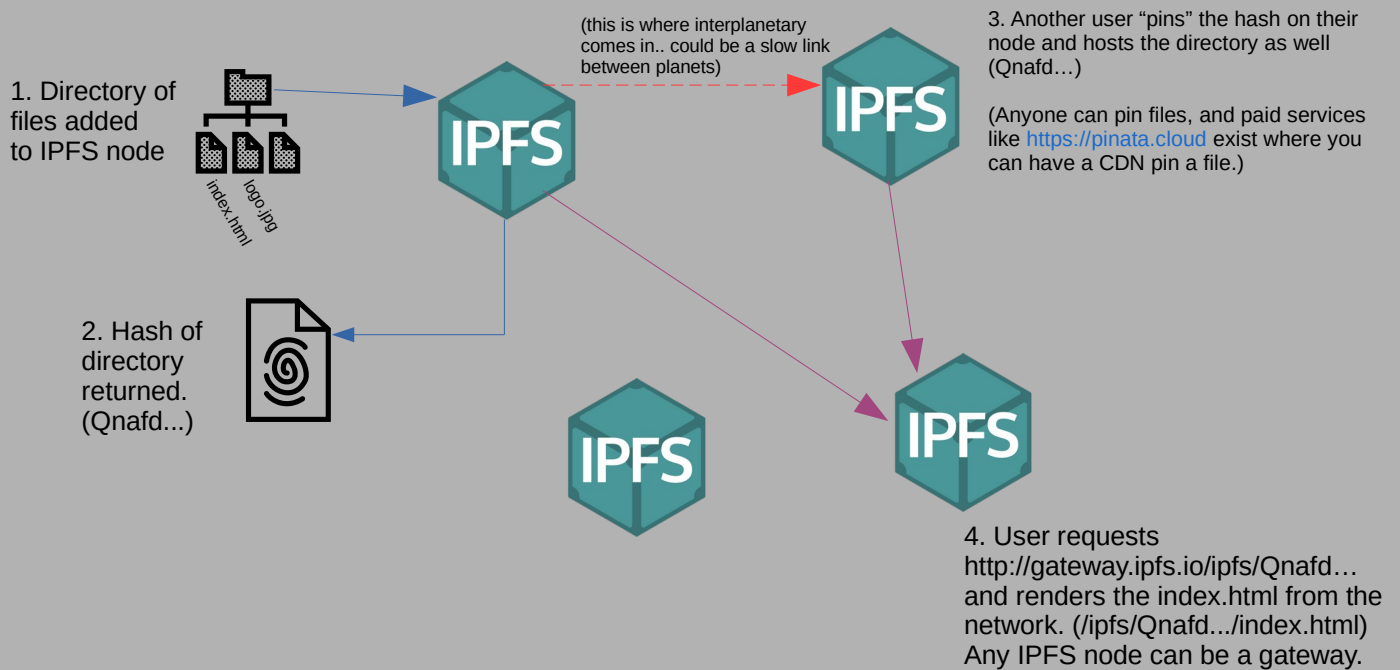
Glossary

- **Gateway** – Any running IPFS node allows access to the network’s contents over http. Multiple public gateways exist to allow IPFS access without running an IPFS node.
- **/ipfs/<hash>** – URL to access a file or directory of files on an IPFS gateway.
- **/ipns/<hash|dns>** – URL to access a file or directory under a fixed name. Hashes are public key based, dns is dnslink based and involves a DNS TXT record.
- **Pinning** – Hosting a file / directory on your IPFS node. Users accessing the file / directory will pull it from every node “pinning” it.

Publishing individual files to IPFS



Publishing directories to IPFS



Making IPFS content available via traditional DNS

IPFS gateways are able to render real sites from real domain names. Gateways rely on the "dnslink" specification to do this.

1. Point your subdomain to an IPFS gateway

```
www.coolsite.com IN A 104.18.252.167 (cloudflare-ipfs.com) IPFS
```

2. Create a dnslink TXT record pointing to your content

```
www.coolsite.com IN TXT dnslink=/ipfs/Qnafd...
```

3. <https://cloudflare-ipfs.com/ipns/www.coolsite.com> now renders /ipfs/Qnafd... (the gateway checks the TXT record)

4. www.coolsite.com now goes to the IPFS gateway

* The IPFS gateway sees 'Host: www.coolsite.com' in the HTTP header and checks /ipns/www.coolsite.com

* The IPFS gateway checks the TXT record for what to render.

Final Notes

- Other peer2peer DNS systems exist which support IPFS such as Ethereum Name Service (<https://ens.domains>), these however require native browser support for ENS and IPFS (Opera, Brave)
- By design, all IPFS hashes will change when a file or directory is modified. If you host a site on IPFS, and change a file within a directory, the hash of the directory **will** change and you will need to modify your dnslink target.
- Ensure you have enough copies of your data pinned for larger sites. Hosting a high traffic site from a single NAS on a home network is likely to fail without ensuring multiple pins exist.

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