

Backend Engineer Assignment

The goal is to save and fetch encrypted images using p2p technology and also demonstrate an understanding of backend engineering and networking. Estimated time: 4-6 hrs. Let us know if you have any questions!

Specifications

- Install a local IPFS node. Ensure it is running and the default API port 5001 is open and accessible by your app (see links below for this any IPFS info you will need for this).
- Create an application (NodeJs or Golang) that has HTTP APIs to save and fetch files to and from IPFS. This would use the PUT and GET APIs respectively.
- Files need to be encrypted on IPFS, users should read the file using their key pair
- Create a simple page that fetches the uploaded files and displays them.

Additional Information

- It is not required to persist keys across sessions
- No need to do anything fancy with the styling of the frontend page. It's only for demonstrating your working APIs so you won't be assessed on style.
- Focus on the happy path. No need to worry about edge-cases. It's fine if it only compiles on UNIX systems.

Written Questions

How would you solve sharing these encrypted images with a friend via a public link? And how would you improve the key management? How would you compare and contrast HTTP with p2p protocols like IPFS and BitTorrent in terms of performance and availability? How would you improve BitTorrent protocol if you had a chance?

Assessment

- Completion/functionality - 10 pts (are all the pieces working as described?)
- Code quality - 5 pts (structure, style, package selection, efficiency)
- Documentation - 5 pts (could be as comments or a quick readme)
- Written questions - 5 pts

Useful Links

- <https://docs.ipfs.io/install/command-line/>
- <https://github.com/ipfs/js-ipfs/tree/master/packages/ipfs-http-client>
- <https://docs.ipfs.io/reference/http/api/#api-v0-block-put>

- <https://docs.ipfs.io/reference/http/api/#api-v0-block-get>