**IPFS and Pinata vs HTTP vs on chain SVGs**

**The issue with IPFS vs HTTPS**

In this lesson we'll discuss two ways we can reference our data in IPFS and ways we can strengthen the hosting of it to ensure it's always made available.

First things first: Let's discuss the **InterPlanetary File System (IPFS)** and the pros and cons associated with it.

**IPFS**

We learnt previously that there are two ways to reference the location of data hosted by IPFS. We can point directly to the IPFS network with the syntax ipfs://<CID> *or* we can use the IPFS Gateway and point to an IPFS server via https://ipfs.io/ipfs/<CID>.

There are some important considerations to keep in mind here. If we decide to use the IPFS Gateway, this is essentially pointing to a website hosted on a server by IPFS. If this website or server goes down for any reason the data we're pointing to will be unretrievable!

Imagine losing the art of your NFT forever!

A safer methodology is pointing to the IPFS network directly, but this comes with caveats. While the URI is pointing to a decentralized network, assuring the data is accessible so long as a node is still hosting it, most browsers and services don't natively support interfacing with the IPFS network. This can make viewing and interacting with your NFT cumbersome.

In addition to the above, the IPFS network doesn't automatically distribute all data amongst all nodes on the network (like a blockchain would). Instead it relies on nodes pinning the data they find valuable to assure it's available to the rest of the network. If I'm the only person pinning my data on IPFS, I'm not any more decentralized than using the IPFS Gateway.

***So, how do we solve this?***

**Pinning Services**

Fortunately, there are services available which developers can use to pin their data for them, decentralizing access to it. One such service is [**Pinata.cloud**](https://www.pinata.cloud/).

Once an account is created and you've logged in, the UI functions much like an IPFS node and you can simply upload any files you want the service to pin on your behalf.

Once uploaded, Pinata will provide a CID, just like IPFS itself will.

❗ **PROTIP** Whenever I work on a project, I will upload my images/data both to my local IPFS node as well as Pinata to assure the data is always pinned *somewhere*.

**Wrap Up**

So, in summary, pointing to the IPFS Gateway, not great. Pointing to the IPFS network itself is a little better and more decentralized, but comes with it's own issues. What if I told you there's an even better way to store our images?

In the next lesson we'll discuss Scalable Vector Graphics, or SVGs and how images of this type can be stored *on-chain* making them permanently accessible!

See you there!