EAS 5830: BLOCKCHAINS

IPFS

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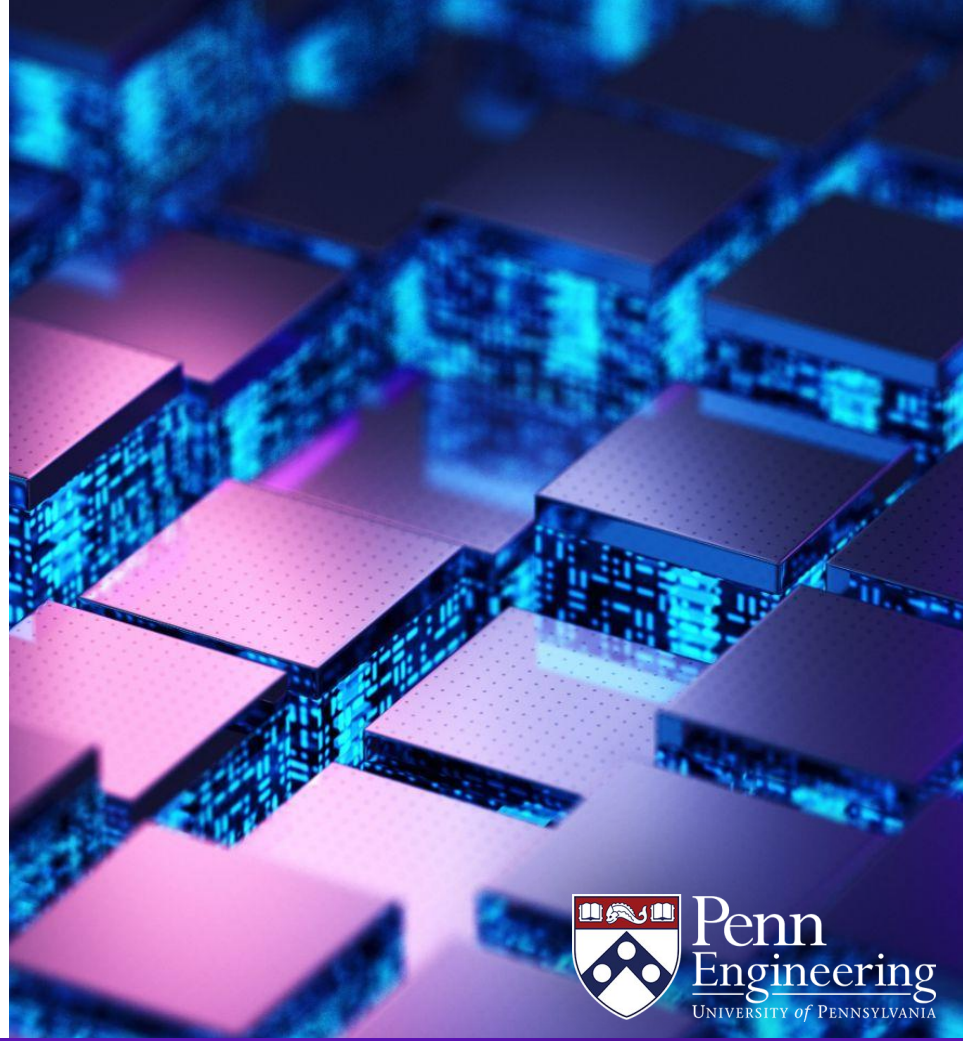

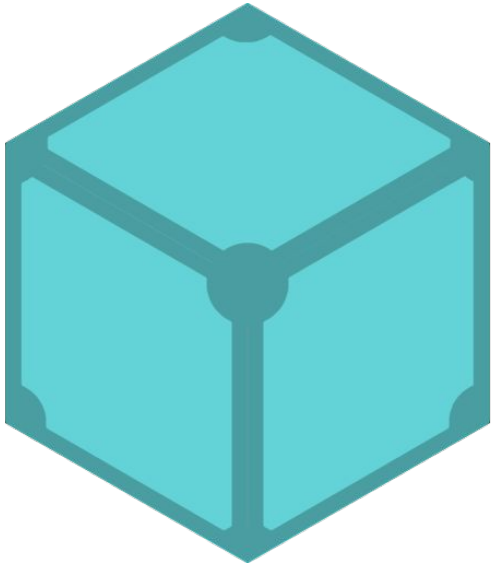

IPFS

IPFS is not a blokcchain

Peer-to-Peer file sharing

- Servers can host any files they want
- Servers ask their peers
- Popular files are highly replicated

A

1. ExileOnMainSt.zip
2. StickFingers.zip
3. BeggarsBanquet.zip
4. ….

C

1. TheHealer.zip
2. MrLucky.zip
3. ExileOnMainSt.zip
4. ….

B

1. Brave.mkv
2. Cars.mkv
3. InsideOut.mkv
4. ….

IPFS

- Open-source peer-to-peer file sharing
- Anyone can run an IPFS node
  - Nodes can host any files they want
- Like BitTorrent
  - Popular files are likely hosted by many nodes

Finding files

- Files are located by their Content Identifier (CID)
  - Basically the hash of the file
    - IPFS v0 hashes start Qm e.g. QmPQdVU1riwzijhCs1Lk6CHmDo4LpmwPPLuDauY3i8gSzL
    - IPFS v1 hashes sart bafy e.g. bafybeiejv7o3zqcizio3jpcc5geucdvci73klmf7kazyzpvyp5qn64ny4a

Indexing by hash

- Pro: If you search for a file by its hash, you know what you're getting
- Con: If you want a file, you need to know its hash

Minting NFTs

- Many NFTs store their images and metadata on IPFS
- Step 1: Store content on IPFS
- Step 2: Record IPFS CID in smart-contract
- Step 3: Profit

Pinning services

- To make content available
  - Self-hosting
  - Pinning services
    - Pinata
    - Infura
    - Filebase