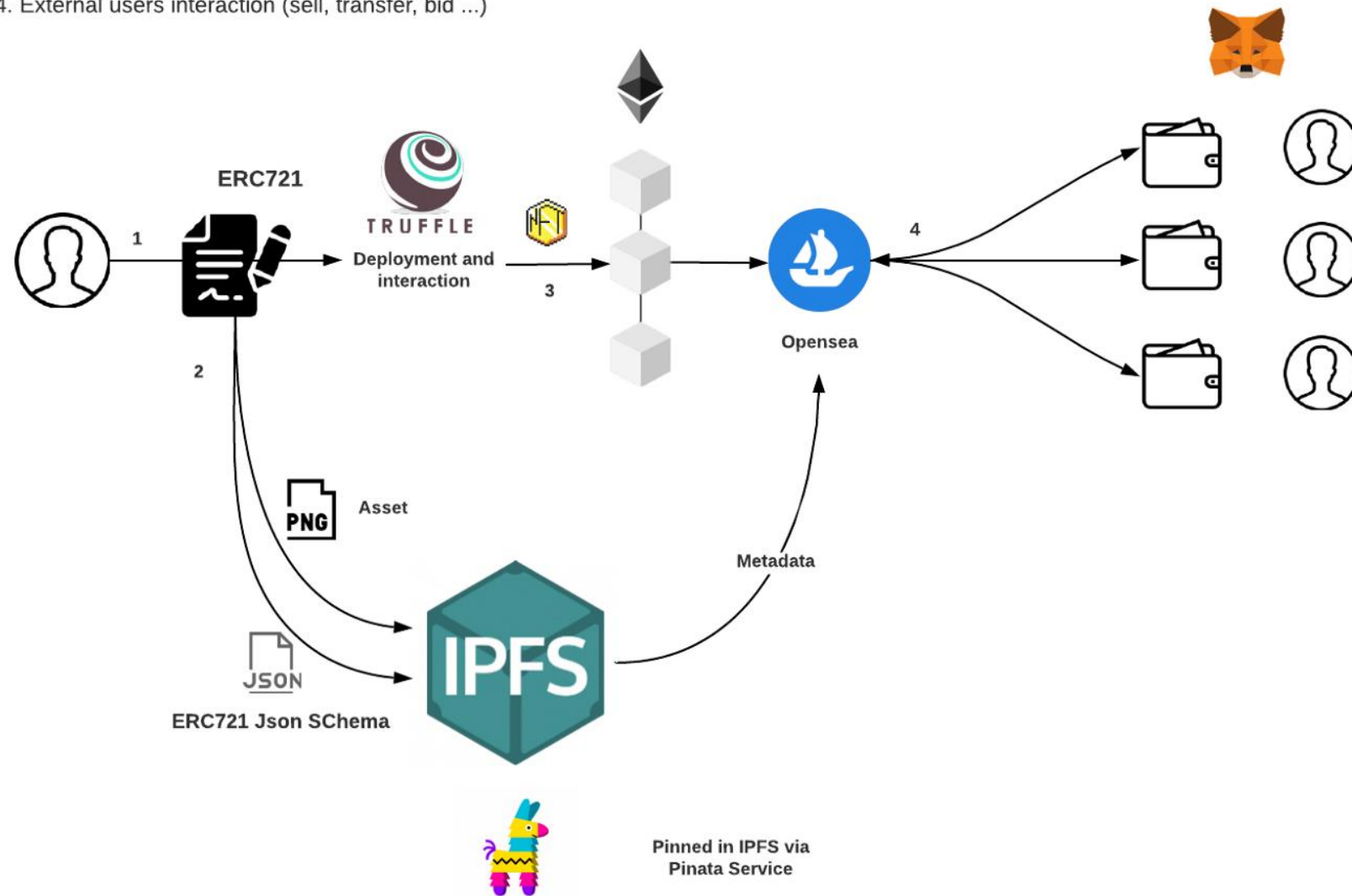


# Homework-4: Programming an ERC721 Token Contract

- Ref. [Creating your own NFT from scratch and listing it on OpenSea](#)
- Using Truffle, OpenZeppelin, Pinata, Testnet (**Sepolia**), and OpenSea



1. Setting up the contracts
2. Upload and set metadata (Pinata/IPFS).
3. Deployment and interaction (mint, burn, pause ...)
4. External users interaction (sell, transfer, bid ...)



# Ref. How to Write & Deploy an NFT

- <https://ethereum.org/en/developers/tutorials/how-to-write-and-deploy-an-nft/>
- Creating and deploying an ERC-721 smart contract on the **Sepolia** test network using MetaMask, Solidity, OpenZeppelin, (Hardhat), Pinata and (Alchemy).
  - Hardhat is a development environment to compile, deploy, test, and debug your Ethereum software.
  - Alchemy is a blockchain developer platform and API that allows us to communicate with the Ethereum chain without having to run our own nodes.
  - **Interplanetary File System (IPFS)** is a decentralized protocol and peer-to-peer network for storing and sharing data in a distributed file system.
  - **Pinata** is a convenient IPFS API and toolkit, to store our NFT asset and metadata to ensure our NFT is truly decentralized.

# Development Tools & Blockchain Node Providers



Truffle


VS











Hardhat




# E.g. YCC NFTs (1/2)




Pinata


Name	CID
Metadata  4/27/2022 1.6 KB	QmeibVavGA3QVT9FRZgBt59NuhWwfRoSuD3i5cL3M8xTT7 
YccNFT-2.jpg  4/27/2022 7.6 KB	QmTvTTERHi2SkCo4ETtth4MV9FAYFMWgSGw92wQSbDSnbB 
YccNFT-1.jpg  4/27/2022 6.3 KB	QmU2dod7KvtgJSiBVsLxJz6QJJGfh6sehLJ1f7zKrBSg3S 
YccNFT-0.jpg  4/27/2022 6.7 KB	QmR7TNcDBb56ujYzrx6gLo6JqpweYs9QZdyYb3j2dgHBaE 



OpenSea  
Testnets

## Signature Request

Account: NCNU T...  Balance: 0.8 ETH

Origin:  <https://testnets.opensea.io>

You are signing:

Message:  
Welcome to OpenSea!

Click to sign in and accept the OpenSea Terms of Service: <https://opensea.io/tos>

This request will not trigger a blockchain transaction or cost any gas fees.

Your authentication status will reset after 24 hours.

Wallet address:

[Cancel](#) [Sign](#)



# E.g. YCC NFTs (2/2)

