

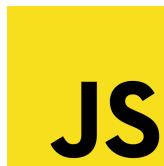
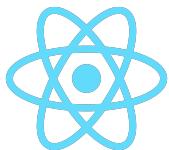
IMPLEMENTING WEB3 VIA APIs IS STILL DECENTRALIZED?

Soumaya Erradi

Lead Software Developer & IT and Electronics Instructor

Soumaya Erradi

- Lead software developer @ Scaling parrots
- Frontend specialist
- Web3 enthusiast
- IT and electronics instructor



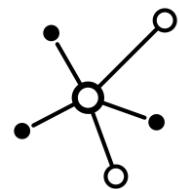
Web3

Decentralized web

- Peer-to-peer networks
- Open-source protocols
- Distributed ledger technologies like the blockchain

Blockchain technology

Pros



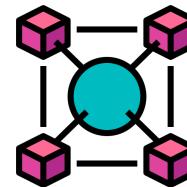
Decentralization



Ownership



Security



Interoperability



Permission less

Cons



Scalability



Complexity



User adoption

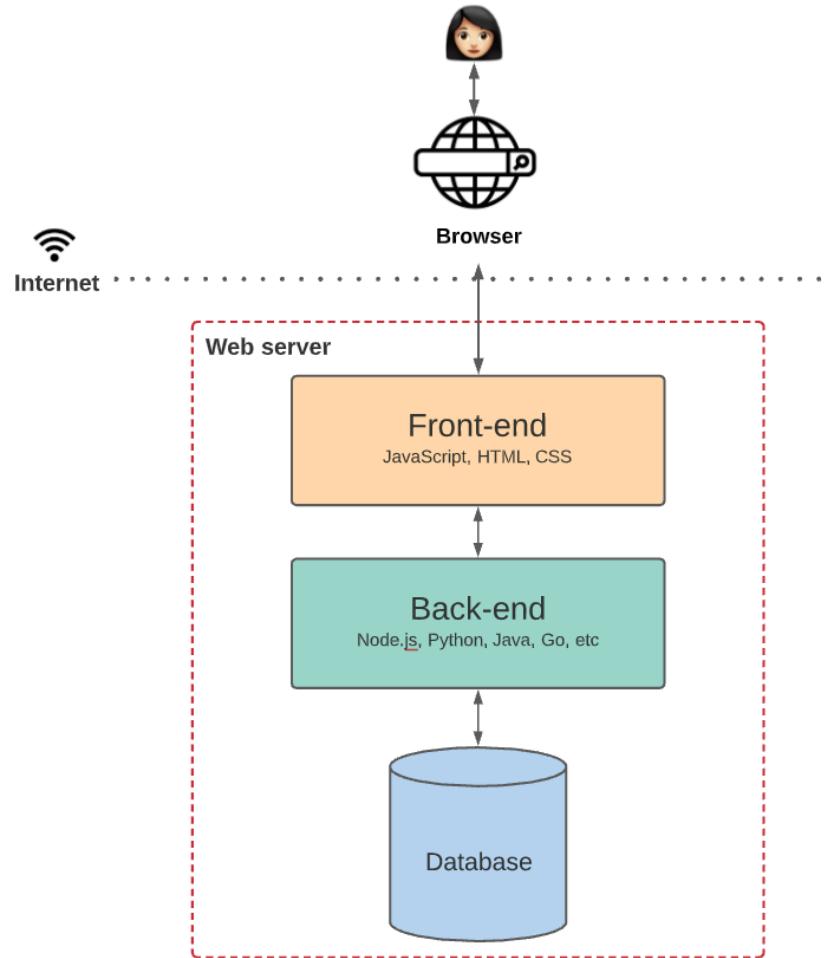


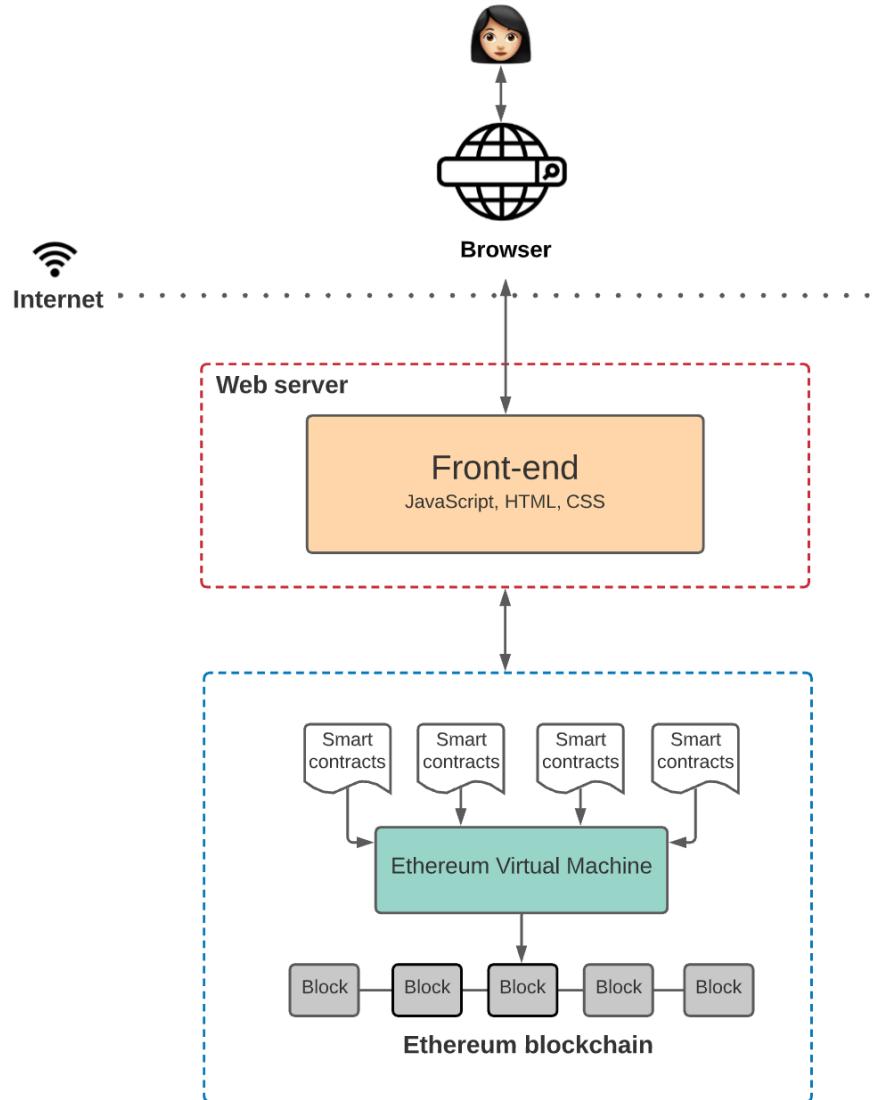
Environmental impact



Scalability

Web3 development





Decentralization

Blockchain

decentralized digital ledger of transactions that uses cryptography to secure and verify each transaction

Decentralized

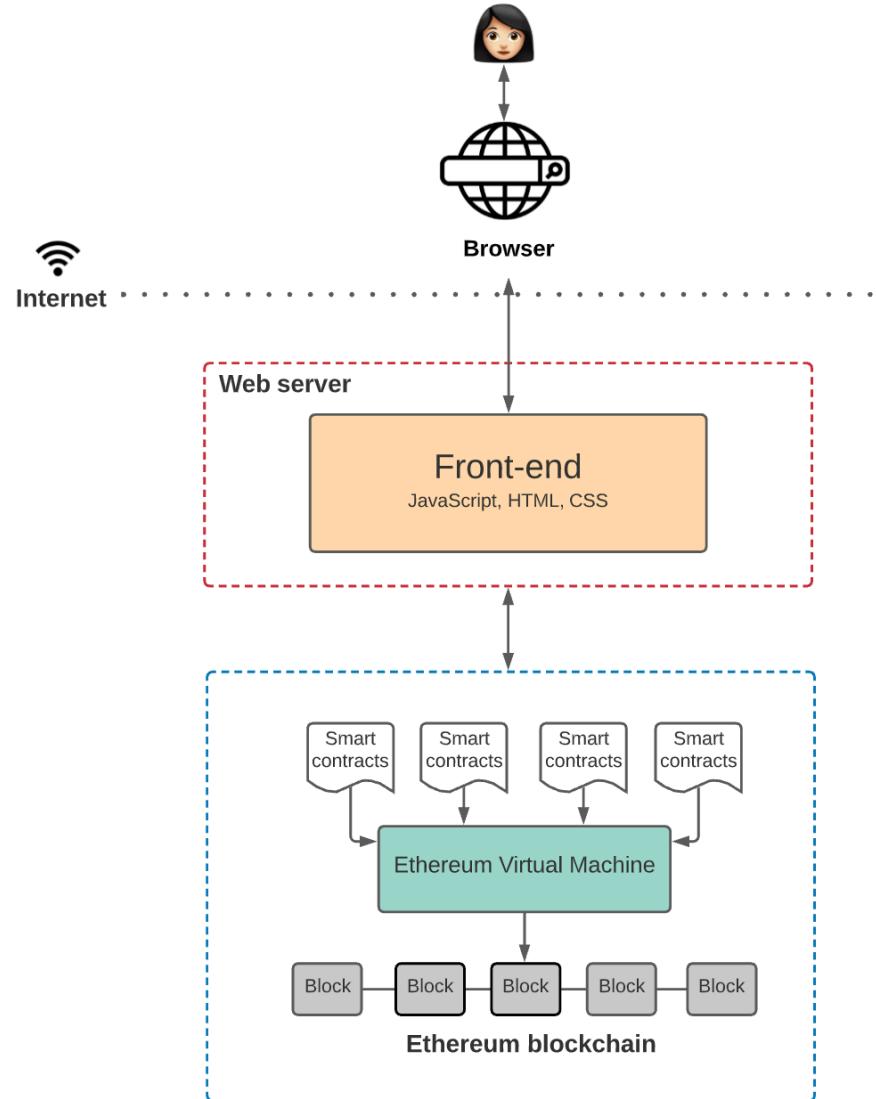
distribution of power and control
away from a central authority or entity

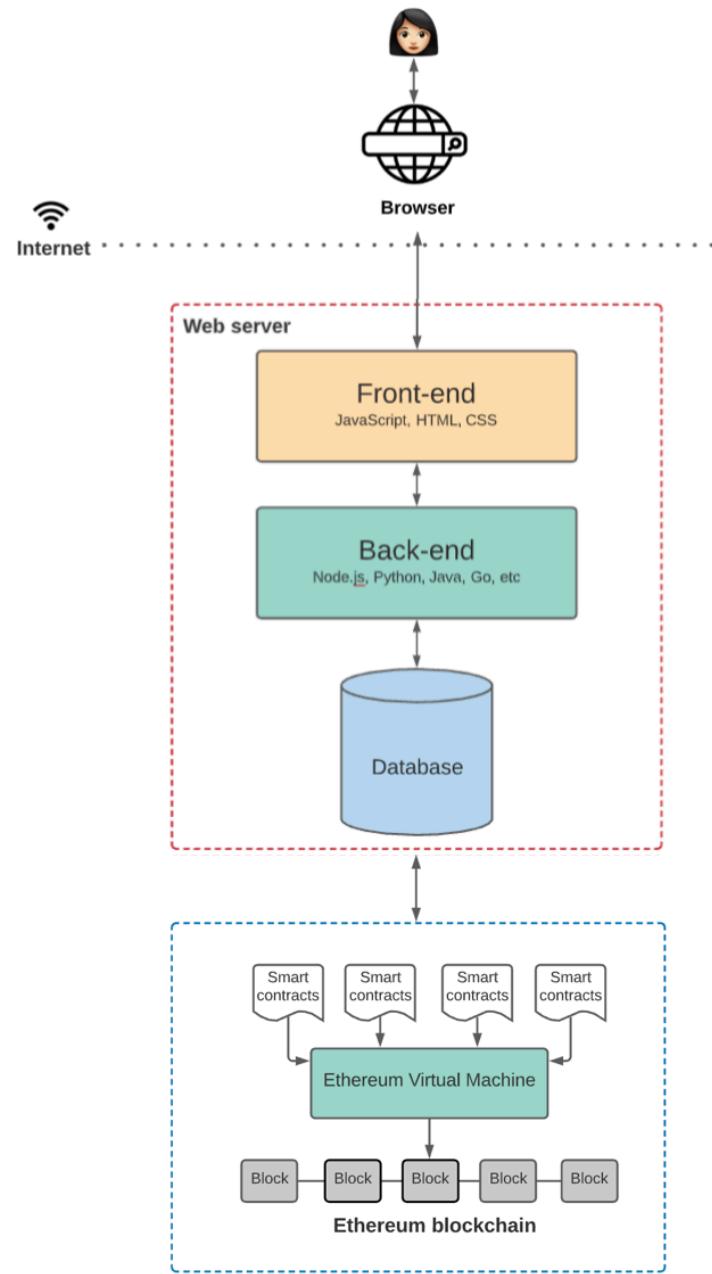
Greater transparency and security

A decentralized application
is really decentralized?

The dev team has control over what code the user receives, and could change that code at any time.

**Unless the frontend is opensource,
is actually centralized**

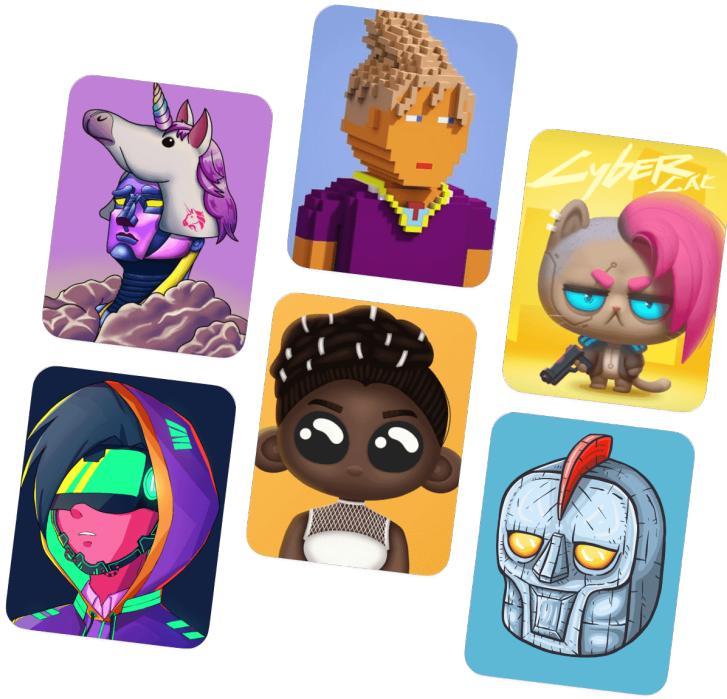




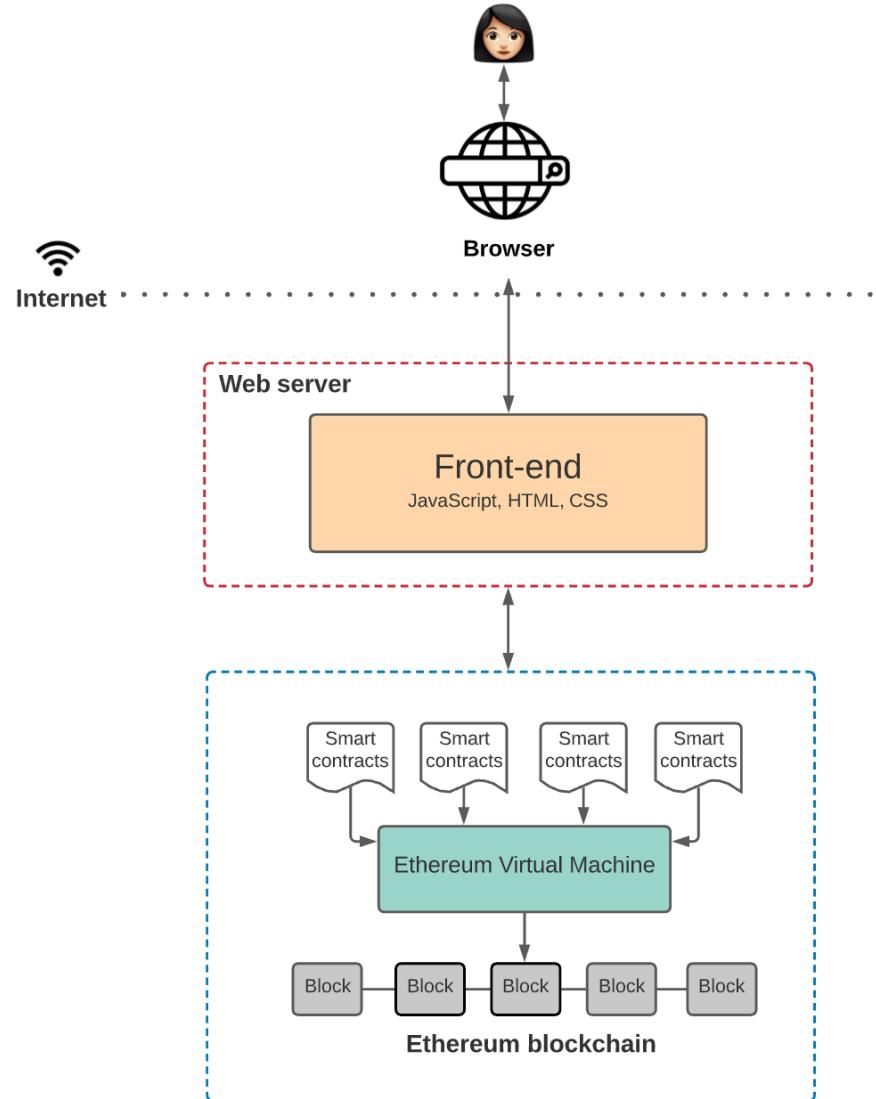


Scalability

Performance issues



NFT MARKETPLACE



3 collections of 6 nfts each



SM: 30 smart contract req + 18 http req

Marketplace Factory



marketplaceCounter

```
for (let i = 0; i < marketplaceCounter; i++)
```

Marketplace Factory



marketplace(i)

Marketplace



nft

Collection



name

Collection



totalSupply

(SM) Collection



name

(SM) Collection



totalSupply

```
for (let i = 0; i < totalSupply; i++)
```

(SM) Collection

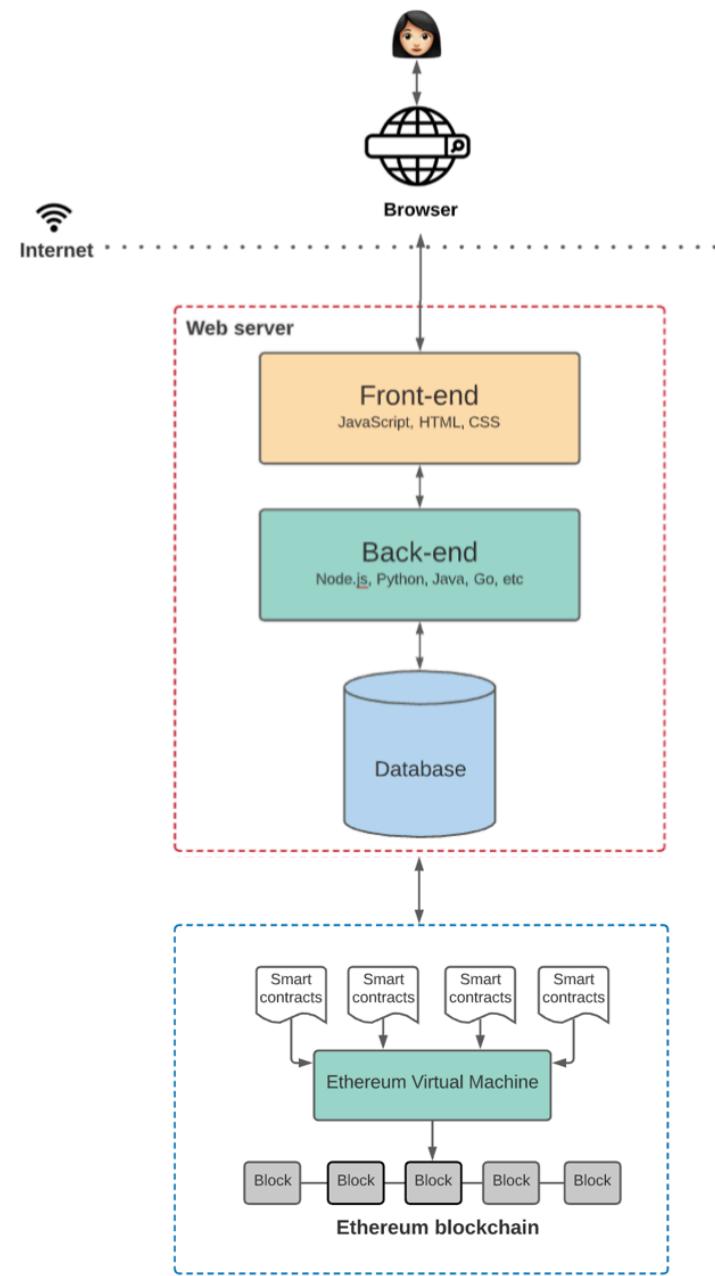


tokenURI(i)

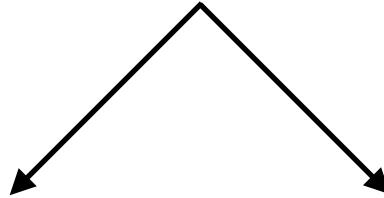
Http



[https://ipfs.io/ipfs/\\${tokenURI}](https://ipfs.io/ipfs/${tokenURI})



3 collections of 6 nfts each



1 http req
collection list page

1 http req
collection detail page

BACKEND: 2 http req

```
{  
  marketplaceAddress: string;  
  collectionAddress: string;  
  totalSupply: number;  
  collectionName: string;  
  imageUrl: string;  
}  
[]  
  
{  
  name: string;  
  description: string;  
  imageUrl: string;  
}[]
```

Web3 dev tools

Library



ethers.js

Ethers.js

```
npm install ethers
```

```
import { ethers } from "ethers";
```

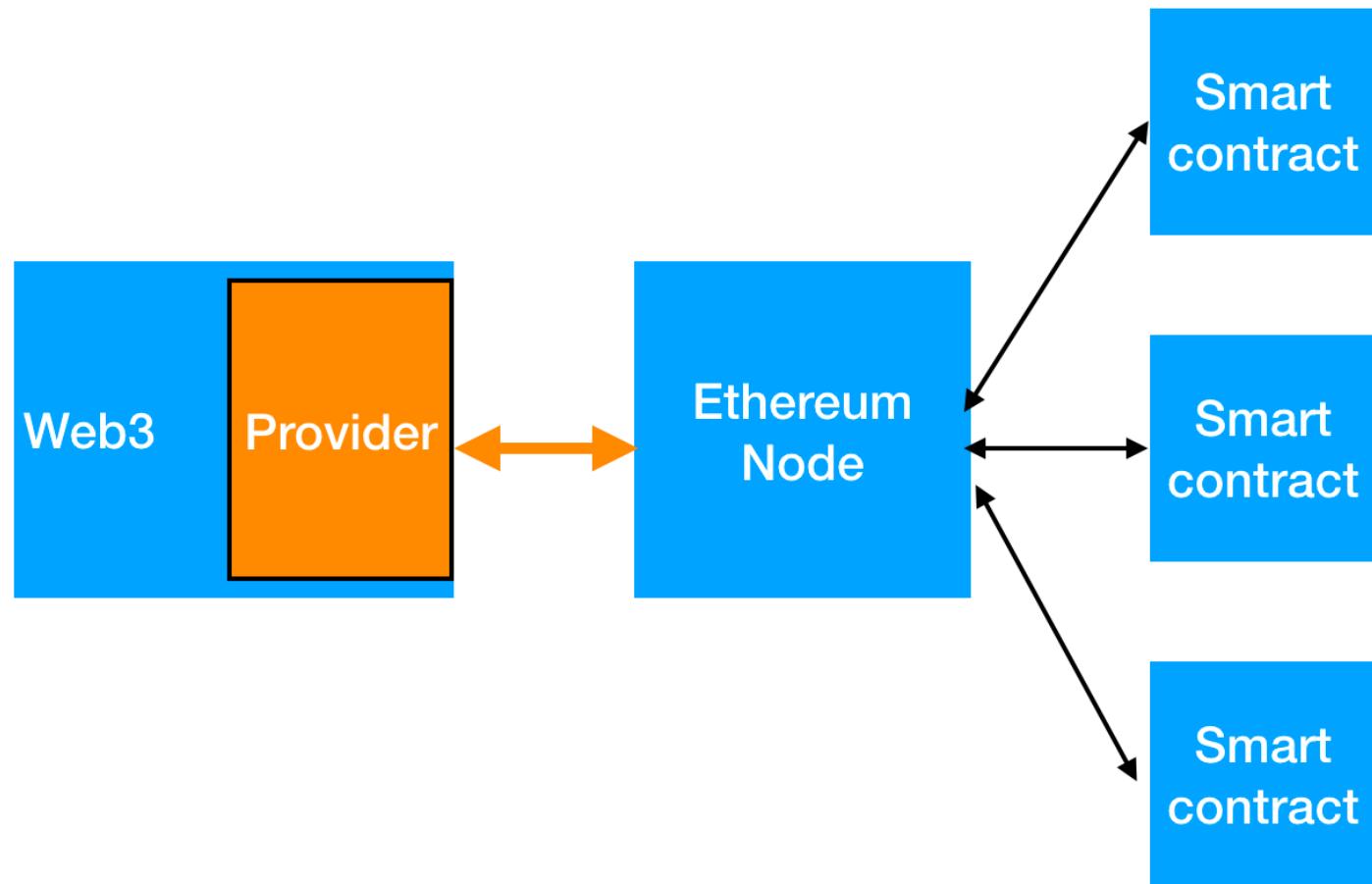
Ethers.js

- **Provider** - This is a class in Ethers.js that provides abstract read-only access to the blockchain
- **Contract** - This class is responsible for the connection to specific contracts on the network

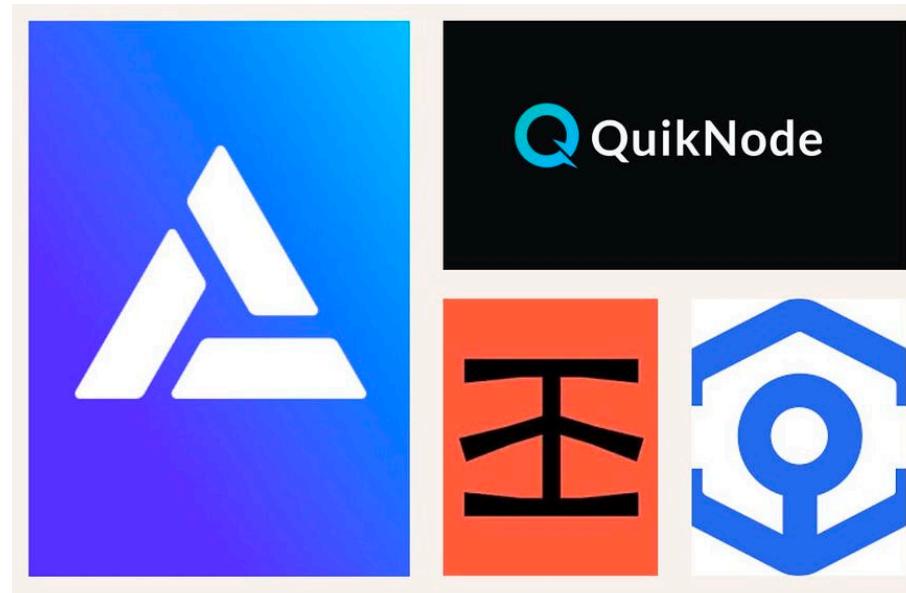
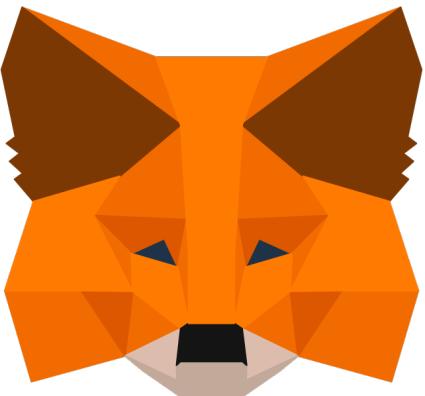
Read and write

```
{  
  "constant": true,  
  "inputs": [],  
  "name": "name",  
  "outputs": [  
    {  
      "name": "",  
      "type": "string"  
    }  
  ],  
  "payable": false,  
  "stateMutability": "view",  
  "type": "function"  
}  
  
{  
  "constant": false,  
  "inputs": [  
    {  
      "name": "_to",  
      "type": "address"  
    },  
    {  
      "name": "_value",  
      "type": "uint256"  
    }  
  ],  
  "name": "transfer",  
  "outputs": [  
    {  
      "name": "",  
      "type": "bool"  
    }  
  ],  
  "payable": false,  
  "stateMutability": "nonpayable",  
  "type": "function"  
}
```

Provider



Wallet provider vs public nodes



</> example

Wallet provider

```
const metamaskProvider = window.ethereum;
```

```
const web3provider = new ethers.providers.Web3Provider(metamaskProvider);
```

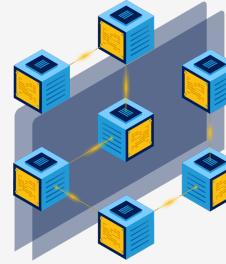
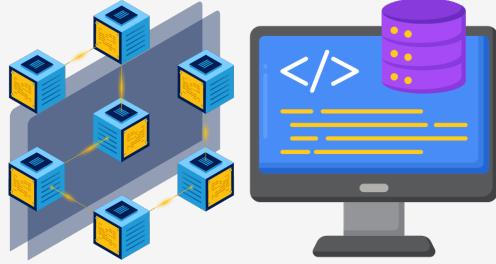
Public node provider

```
const rpcUrl = 'https://bsc-dataseed.binance.org';  
  
const provider = new providers.JsonRpcProvider(rpcUrl);
```

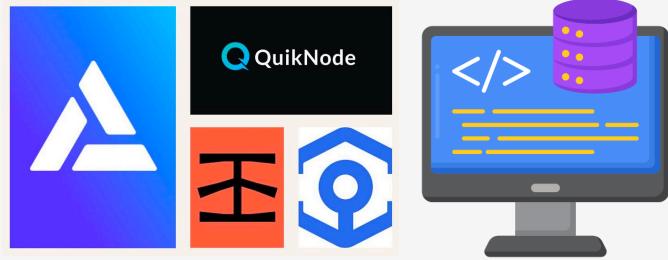
```
const contractManager = new ethers.Contract(  
    contractAddress,  
    abi,  
    provider  
)  
  
contractManager[methodName](...args);
```

```
const contractManager = new ethers.Contract(  
    contractAddress,  
    abi,  
    provider  
);
```

```
contractManager[methodName](...args);
```

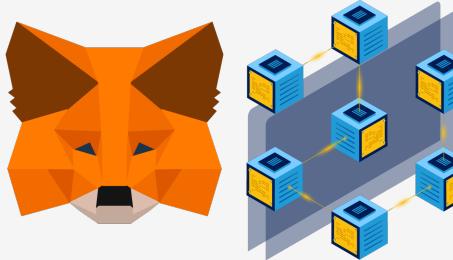


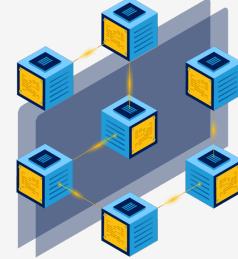
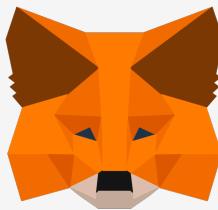
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      "type": "string"  
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  "type": "function"  
}  
  
{  
  "constant": false,  
  "inputs": [  
    {  
      "name": "_to",  
      "type": "address"  
    },  
    {  
      "name": "_value",  
      "type": "uint256"  
    }  
  ],  
  "name": "transfer",  
  "outputs": [  
    {  
      "name": "",  
      "type": "bool"  
    }  
  ],  
  "payable": false,  
  "stateMutability": "nonpayable",  
  "type": "function"  
}
```



```
{  
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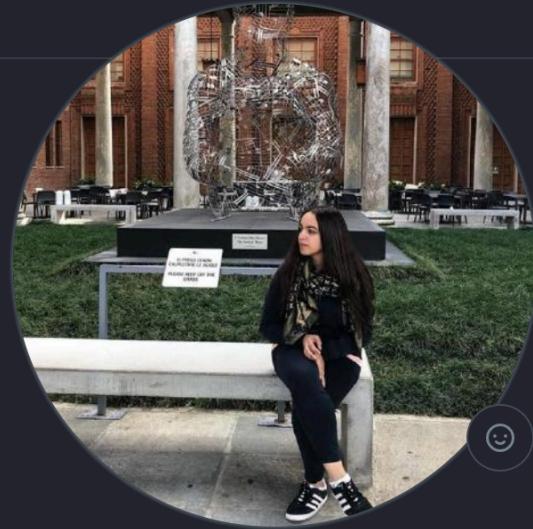


```
{  
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  "outputs": [  
    {  
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}
```



Demo



Soumaya Erradi
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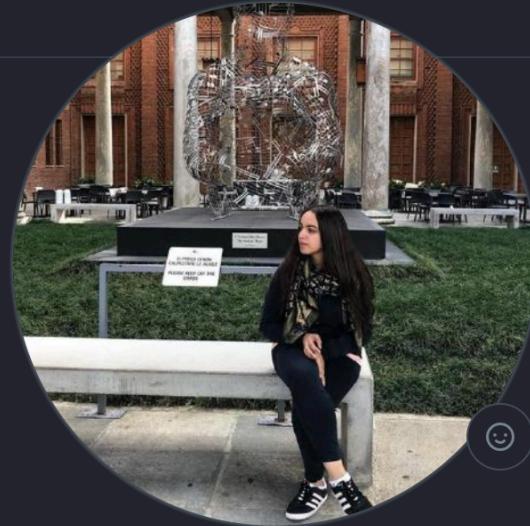
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Thank you!

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